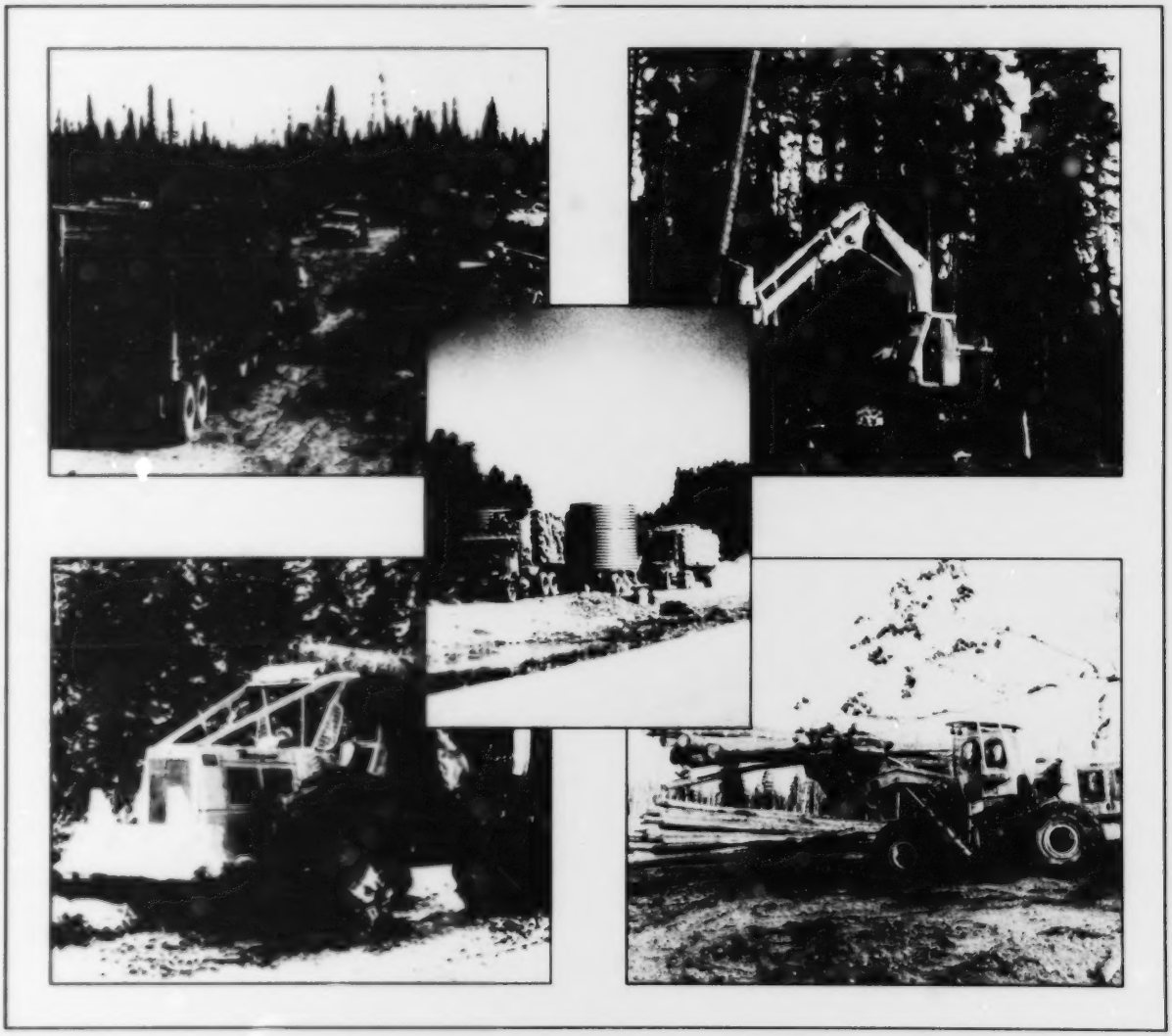
Compendium of Canadian Manufactured Forest Machinery and Tools

Franc Humar
Industry, Trade and Technology Branch • Information Report DPC-X-31



Forestry Canada Forêts Canada

Forestry Canada

Forestry Canada is the main focus for forestry matters in the federal government. It provides national leadership through the development, coordination, and implementation of federal policies and programs to enhance long-term economic, social, and environmental benefits from the forest sector for Canadians.

Forestry Canada is a decentralized organization with six regions, two national research institutes, and seven regional sub-offices located across Canada. Headquarters is located in the National Capital Region in Hull, Quebec.

In support of its mandate, Forestry Canada carries out the following activities:

- administers forest development agreements negotiated with the provinces
- undertakes and supports research, development, and technology transfer in forest management and utilization
- compiles, analyzes, and disseminates information about national and international forest resources and related matters
- monitors disease and insect pests in Canada's forests
- provides information, analyses, and policy advice on economics, industry, markets, and trade related to the forest sector
- promotes employment, education, and training opportunities in the forest sector
- promotes public awareness of all aspects of the forest sector

Forestry Canada interacts regularly with provincial and territorial governments, industry, labor, universities, conservationists, and the public through such bodies as the Canadian Council of Forest Ministers, the Forest Sector Advisory Council, the Forestry Research Advisory Council of Canada, the Canadian Forest Inventory Committee, the Canadian Committee on Forest Fire Management, the Canadian Interagency Forest Fire Centre, and regional consultative committees. Forestry Canada is also active in international forestry agencies such as the International Union of Forestry Research Organizations and the Food and Agriculture Organization, as well as in technical and trade missions.

Forêts Canada

Forêts Canada est l'organisme principal en matière de foresterie à l'intérieur du gouvernement fédéral. Chef de file sur le plan national, il assure la préparation, la coordination et la mise en œuvre des politiques et des programmes fédéraux dans le but d'améliorer les avantages économiques, sociaux et environnementaux à long terme offerts aux Canadiens par le secteur forestier.

Forêts Canada est une organisation décentralisée: six régions, deux instituts de recherche nationaux ainsi que sept sous-bureaux régionaux sont répartis dans tout le Canada. L'administration centrale est établie dans la région de la Capitale nationale, à Hull (Québec).

Pour remplir son mandat, Forêts Canada assume les tâches suivantes:

- il administre les accords de développement forestier conclus avec les provinces
- il entreprend et appuie la recherche, la mise au point et le transfert technologique dans le domaine de la gestion et de l'utilisation des forêts
- il rassemble, analyse et diffuse de l'information sur les ressources forestières nationales et internationales et les domaines connexes
- il fait des relevés des maladies et des insectes ravageurs des forêts canadiennes
- il fournit de l'information, des analyses et des conseils (quant aux politiques) concernant l'économie, l'industrie, les marchés et le commerce reliés au secteur forestier
- il favorise les occasions d'emploi et de formation universitaire et technique dans le secteur forestier
- il encourage les Canadiens à prendre conscience de tous les aspects du secteur forestier.

Forêts Canada entretient des rapports sur une base régulière avec les gouvernements provinciaux et territoriaux, l'industrie, le monde du travail, les universités, les environnementalistes et le public par l'entremise d'organismes comme le Conseil canadien des ministres des Forêts, le Conseil consultatif du secteur forestier, le Conseil consultatif de la recherche forestière du Canada, le Comité de l'Inventaire des forêts du Canada, le Comité canadien de la gestion des incendies de forêt, le Centre interservices des feux de forêt du Canada et des comités consultatifs régionaux. Forêts Canada joue également un rôle actif dans des organismes internationaux de foresterie comme l'Union internationale des instituts de recherches forestières et l'Organisation pour l'alimentation et l'agriculture, de même qu'au sein de délégations de nature technique ou commerciale.

Compendium of Canadian Manufactured Forest Machinery and Tools

Franc Humar, P. Eng.

Scientific authority
D.V. Myles
Forestry Canada

Information Report DPC-X-31
Forestry Canada
Ottawa
1989

90-06964/

©Minister of Supply and Services Canada 1989
Cat. No. Fo46-13/31-1990E
ISBN 0-662-17471-4
ISSN 0-705-324X

Copies of this publication may be obtained at no charge from the following address:

Forestry Canada
Corporate and Public Affairs
Place Vincent-Massey
351 St-Joseph Blvd.
Hull, Québec
K1A 1G5

A microfiche edition of this publication may be purchased from:

Micromedia Ltd.
Place du Portage
165 Hôtel-de-Ville
Hull, Québec
J8X 3X2

Cette publication est également disponible en français sous le titre *Inventaire de la machinerie et des outils forestiers d'origine canadienne*.

FOREWORD

This compendium on Canadian Forest Equipment and Tools was contracted to Franc Humar, Professional Forest Engineer through the Science Branch of the Department of Supply and Services. It was sponsored by Forestry Canada and the Department of External Affairs with Mr. D.V. Myles of Forestry Canada as the scientific authority on the project. It was produced with the assistance of the Canadian forest equipment manufacturers who responded to the detailed questionnaires. Without their good co-operation, this publication would not be possible.

Every attempt has been made to include all forest machinery and tools manufactured in Canada.

Any errors or omissions are strictly unintentional, and the fact that one machine may be listed and another omitted is not an endorsement of a particular machine.

This compendium is intended to provide information on the various kinds of forest equipment and tools manufactured in Canada.

INTRODUCTION

The compendium of Canadian manufactured forest machinery and tools, describes the available forestry equipment, with data on the physical, mechanical and operational specifications. This should permit the compendium users to make a preliminary assessment of the forest equipment suitability to meet their particular needs. It is hoped to assist forestry planners, managers of forest projects, professional foresters and engineers, forest technicians and technologists, forest extension personnel, educators, students and other interested persons.

The Compendium is divided into three key forestry sectors: silviculture, logging and transport, and forestry support. The silviculture sector contains nine specific equipment groups consisting of: chemical and fertilizer applicators, land clearing equipment and attachments, nursery equipment, pruning equipment, scarification machinery and attachments, seeding equipment, slash disposal equipment, tree planting equipment and tools, and complementary equipment.

The logging and transport sector covers six main functions: felling, off-road transport, processing, loading secondary transport, road construction and maintenance. Each functional group contains the specific equipment groups of available Canadian manufactured equipment and tools.

The third forest support sector, contains four specific equipment groups consisting of: fire protection, fire monitoring, portable sawmills and complementary equipment.

Each forestry sector lists at its start, in index form, the specific equipment group and the corresponding equipment, attachments and tools.

An index of forestry equipment manufacturers, by key forestry sectors, functions, and specific equipment groups can be found at the front of the compendium. This should permit quick reference of product/manufacturer information.

The opportunity to be listed in future additions is provided to Canadian forestry equipment manufacturers free of charge. If you would like to be included, or wish to suggest changes to the listing, please fill in the form enclosed at the rear of this compendium.

TABLE OF CONTENTS

Page

Product/Manufacturers Index 7

Product Specifications 7

Silviculture 15

- Chemical and Fertilizer Applicators 18
- Land Clearing 23
- Nursery Equipment 32
- Pruning 45
- Scarification 46
- Seeding 54
- Slash Disposal 56
- Tree Planters 61
- Complementary Equipment 68
  - Shelters 68
  - Monitoring Instruments 70
  - Soil Samplers 72
  - Multi-Purpose Items 73

Logging and Transport 75

- Felling 75
  - Manual 76
  - Mechanical 82
- Off-Road Transport 97
  - Small-Scale Operations 99
  - Commercial Operations 109
- Processing 149
  - Delimbers 150
  - Mobile Slashers 156
  - Stationary Slashers 159
  - Woodfuel Processors 160
  - Small Scale Firewood Processors 161
- Loading 167
  - Log Loaders 168
  - Loader/Forwarder 174
  - Loader Attachments 175
- Secondary Transport 187
  - Trucks On and Off Road 188
  - Trailers 192
  - Complementary Truck/Trailer Equipment 200
  - Water Transport 203
- Road Construction and Maintenance 205
  - Excavators 206
  - Attachments 207
  - Motor Graders 214
  - Complementary Construction and Maintenance Equipment 220
  - Modular Bridge Structures 225

Forestry Support 227

- Fire Protection 229
- Fire Monitoring 241
- Portable Sawmills 245
- Complementary Equipment 251

PRODUCT/MANUFACTURER

Page

SILVICULTURE 15

Applicators, Chemicals
- M.K. Rittenhouse & Sons Ltd. 18
- Conair Aviation Ltd. 19
- KBM Forestry Consultants Inc. 20
- Pace Chemicals Ltd. 21

Applicators, Fertilizer
- Conair Aviation Ltd. 22

Land Clearing
- Cazes and Heppner Forest Services Ltd. 23
- Canadian Forestry Equipment Ltd. 24
- Welco-Beales 25, 28, 29, 30, 31
- Balderson Canada Ltd. 26, 27

Nursery Equipment
- Jiffy Products Ltd. 32
- Ropak Can-Am Ltd. 33
- Spencer-Lemaire Industries Ltd. 34, 42
- International Forestech Systems Ltd. 35
- Harnois Industries Inc. 36
- Vary Industries 37
- Westbrook Greenhouse Systems Ltd. 38
- Andpro Ltd. 39
- Harnois Industries Inc. 40
- Hovey Industries Ltd. 41
- Nova Sylva Inc. 43, 44

Pruning
- Seymour Engineering Ltd. 45

Scarification
- Roto International Corporation Inc. 46, 47
- Industries Couture Limitée 48
- Canadian Forestry Equipment Ltd. 49
- Les Entreprises Protege-Sol Inc. 50
- Hawk Forest Enterprises Ltd. 51
- Innovations Forestieres 3R Inc. 52
- Rodrique Metal Ltée 53

Seeding
- Agric Air Inc. 54
- Fandrich Cone Harvesters Ltd. 55

Slash Disposal
- Gemaco Sales Ltd. 56
- Rodrique Metal Ltée 57
- Ministere de l'Énergie et Des Resources, Québec 58
- Balderson Canada Ltd. 59
- Weldco-Beales 60

Tree Planters, Manual Tools
- A & M Steelcraft Ltd. 61
- Nova Sylva Inc. 62, 65, 66
- Forestworld Supplies Ltd. 63
- Neville Crosby Inc. 64

Tree Planters, Mechanical Equipment
- International Forestech Systems Ltd. 67

SILVICULTURE cont'd Page

Complementary Equipment
Shelters
Design Shelter Systems ... 68
Weatherhaven Resources Ltd. ... 69
Monitoring Instruments
Digitech (ACSI Group Ltd.) ... 70
Mynic Inc. ... 71
Soil Samplers
Nova Sylva Inc. ... 72
Multi-Purpose Items
Kootenay Canvas Company Ltd. ... 73

LOGGING AND TRANSPORT ... 75

Felling ... 75

Manual ... 76

Hand Forestry Tools
Fermax Inc. ... 76
Keystone Supplies Company ... 77

Chain Saws and Accessories
Emab Canada, Div. of Euroclean Canada Inc. ... 78
Goldec International Equipment Ltd. ... 79

Complementary Equipment
Opsal Steel Ltd. ... 80
Talkie Tooter (Canada) Ltd. ... 81

Mechanical ... 82

Feller-Bunchers
Finning Ltd. ... 82
Koehring Waterous, Div. of Timberjack Inc. ... 83
Timberjack Inc. ... 84
Tanguay Industries Inc. ... 85

Felling Attachments, Shears
Dika Industries Ltd. ... 86, 87
Harricana Metal Inc. ... 88
Tanguay Industries Inc. ... 89

Felling Attachments, Chain Saws
Le Groupe Equipements Denis Inc. ... 90

Felling Attachments, Circular Saw
Harricana Metal Inc. ... 91
Koehring Waterous, Div. of Timberjack Inc. ... 92

Complementary Equipment
Victoria Machine Shop ... 93
Balderson Canada Ltd. ... 94
Weldco-Beales ... 95

Off-Road Transport ... 97

Small-Scale Operations ... 99

Manual Transport, Mechanical Aids
Montreal Precision Crafting Ltd. ... 100

Mechanical Transport, Walk-Along Type
Ezi-Haul Inc. ... 101

LOGGING AND TRANSPORT cont'd **Page**

Tractors, Skidders, Forwarders
A. Vohl & Fils Ltée. . . . 102
Raidtrac Vehicules Inc. . . . 103

Cable
P.E.I. Dept. of Energy and Forestry . . . 104
Treuil de la Capitale Inc. . . . 105

Complementary Equipment
La Forge J.M.S. Inc. . . . 106
Province of N.B., Dept. of Natural Resources . . . 107, 108

Commercial Operations . . . 109

Wheeled Skidders, Cable and Grapple Types
Caterpillar of Canada Ltd. . . . 111
V.M.E. Equipment of Canada . . . 112, 113
Timberjack Inc. . . . 114, 115

Tracked Skidders, Cable and Grapple Types
Balderson Canada Ltd. . . . 116
Kootenay Tractor and Supply Ltd. . . . 117

Forwarders
Timberjack Inc. . . . 118
Les Enterprises Protege-Sol Inc. . . . 119
Canron Inc. . . . 120

Attachments, Grapples
Balderson Canada Ltd. . . . 121
Le Groupe Equipment Denis Inc. . . . 122
Hydrawrap Canada . . . 123
Johnson Industries Ltd. . . . 124
Weldco-Beales . . . 125

Attachments, Arches, Fairleads and Winches
Balderson Canada Ltd. . . . 126
Lantec Industries Inc. . . . 127
Opsal Steel Ltd. . . . 128
Pullmaster Winch Corp. . . . 129
Weldco-Beales . . . 130

Attachments, R.O.P.S., Canopies and Cabs
Jackson Manufacturing and Machinery Ltd. . . . 131
Weldco-Beales . . . 132

Complementary Skidding Equipment
Victoria Machine Shop Ltd. . . . 133
Comor Supplies Ltd. . . . 134
Opsal Steel Ltd. . . . 135
Les Chaines de Traction Quebec Ltée. . . . 136

Cable, Yarders
Cypress Equipment Co. Ltd. . . . 137
S. Madill Ltd. . . . 138, 139, 140
Skylead Logging Equipment Corp. . . . 141

LOGGING AND TRANSPORT cont'd — Page

Cable, Grapples
Johnson Industries Ltd. . . . 142, 143

Cable, Carriages
Johnson Industries Ltd. . . . 144

Cable, Complementary Equipment
Johnson Industries Ltd. . . . 145
Talkie Tooter (Canada) Ltd. . . . 146, 147

Processing . . . 149

Delimbers
Le Groupe Equipements Denis Inc. . . . 150, 151
Harricana Metal Inc. . . . 152
Pro Pac Industries . . . 153
Tanguay Industries Inc. . . . 154
Timberjack Inc. . . . 155

Mobile Slashers
Mecfor Inc. . . . 156
Pro Pac Industries . . . 157
Tanguay Industries Inc. . . . 158

Stationary Slashers
Tanguay Industries Inc. . . . 159

Woodfuel Processors
Nicholson Manufacturing Ltd. . . . 160
Eaglewood Industries Ltd. . . . 161

Firewood Processors, Small Scale
Eaglewood Industries Ltd. . . . 161
Fusiontech & Machine Inc. . . . 162
Les Industries Desjardins Ltée. . . . 163, 164
Hall's Maritime Welding Ltd. . . . 165
Super Split Industries . . . 166

Loading . . . 167

Log Loaders, Hydraulic Boom Type
Koehring Waterous, Div. of Timberjack . . . 168
Tanguay Industries Inc. . . . 169
Rotobec Inc. . . . 170

Log Loaders, Front-End Type
Comact Machineries Inc. . . . 171

Log Loaders, Pedestal Type
Tanguay Industries Inc. . . . 172

Log Loaders, Cable Type
Cypress Equipment Co. Ltd. . . . 173

LOGGING AND TRANSPORT cont'd

Page

Loader/Forwarder
Koehring Waterous, Div. of Timberjack Inc. . . . 174

Attachments, Rotating Grapples
Harricana Metal Inc. . . . 175, 176
Rotobec Inc. . . . 177
Weldco-Beales . . . 178, 179

Attachments, Front-end Quick Coupler
Balderson Canada Ltd. . . . 180
Les Industries Vallee Inc. . . . 181

Attachments, Front-end Forks, Buckets and Woodchip Buckets
Balderson Canada Ltd. . . . 182, 183
Weldco-Beales . . . 184, 185

Secondary Transport . . . 187

Trucks, On and Off Road
Freightliner of Canada Ltd. . . . 188
Navistar International Corp. (Canada) . . . 189
Western Star Trucks Inc. . . . 190
Challenger Manufacturing Ltd. . . . 191

Trailers, Pulp, Log, Chip, and Equipment Transport
Knight Trailer Company Inc. . . . 192
Porcupine Trailers Ltd. . . . 193
Temisco (1983) Inc. . . . 194
Manac, Rodeck Forest Division . . . 195
Les Remorques Rem Fab Inc. . . . 196
Lardine Truck and Trailer Ltd. . . . 197
Container and Trailer Services Ltd. . . . 198
BWS Manufacturing Ltd. . . . 199

Complementary Equipment
Chalmers Suspensions International Ltd. . . . 200
Koehring Waterous, Div. of Timberjack Inc. . . . 201
Canadian Truck Equipment Inc. . . . 202

Water Transport
Lister Bolt and Chain Ltd. . . . 203

LOGGING AND TRANSPORT cont'd

Page

Road Construction and Maintenance 205

Excavators
Finning Ltd. 206

Excavator Attachments
Balderson Canada Ltd. 207, 208
Weldco-Beales 209, 210

Complementary Excavator Equipment
Weldco-Beales 211

Crawler Attachments
Weldco-Beales 212, 213

Motor Graders
Champion Road Machinery Ltd. 214

Motor Grader Attachments
Champion Road Machinery Ltd. 215, 216, 217, 218
Weldco-Beales 219

Complementary Road Construction and Maintenance Equipment
Balderson Canada Ltd. 220
Canadian Snow Boss Inc. 221
BWS Manufacturing Ltd. 222
Weldco-Beales 223
Terrafix Geosynthetics Inc. 224

Modular Bridge Structures
Modular Bridge Systems (Div. of Surespan Construction) 225

Page

FOREST SUPPORT 227

Fire Protection 229

Air Tankers, Helitankers
Conair Aviation Ltd. 230, 231, 232

Wheeled Mobile Fire Control Units
Wajax Manufacturing Ltd. 233

Manual Fire Control Units
Wajax Manufacturing Ltd. 234

Complementary Fire Control Accessories
Co-Son Industries 235
Fireflex Manufacturing Ltd. 236, 237, 238, 239

Fire Monitoring 241
Forest Technology Systems Ltd. 242, 243

Portable Sawmills 245

Bandmills
Bonter Midway Mfg. Ltd. 246
Enercraft Mfg. (Div. of Elabern Ltd.) 247

Circular Sawmills
Almac Machine Works Ltd. 248
Brunette Machine Works Ltd. 249
Les Industries Desjardins Ltée 250

Complementary Portable Sawmill Equipment
Les Industries Desjardins Ltée 251, 252, 253

SILVICULTURE

SILVICULTURE Page

Applicators, Chemicals
Rittenhouse Sprayers . . . 18
Conair Aerial Spray Systems . . . 19
KBM/Bracke Herbicider . . . 20
Gel Cap Injection System . . . 21

Applicators, Fertilizer
Conair Aerial Fertilizer Spreader . . . 22

Land Clearing
Cazes & Heppner Plow . . . 23
Canadian Forestry Equipment Slash Rake . . . 24
Weldco-Beales Land Clearing Blade and Grapple Rake . . . 25
Balderson/Fleco Land Clearing and Forestry Brush Blades and Rakes . . . 26
Balderson/Fleco Blade Rake . . . 27
Weldco-Beales Mould Board Rake . . . 28
Weldco-Beales Brush and Clearing Rake . . . 29
Weldco-Beales Brush Cutter . . . 30
Weldco-Beales Stump Splitter . . . 31

Nursery Equipment
Jiffy Seedling Propagation System . . . 32
Ropak Multi-Pot Seedling Trays . . . 33
Spencer-Lemaire Seedling Germination and Container System . . . 34
Xylon Tree Seedling Containers . . . 35
Harnois Greenhouse Systems . . . 36
Vary Greenhouse Systems . . . 37
Westbrook Gutter Connected Greenhouse . . . 38
Andpro Spray-Rite Nursery Sprayers . . . 39
Harnois Greenhouse Accessories . . . 40
Hovey Nursery Seedling Harvester . . . 41
Spencer-Lemaire Germination Boxes and Filling Machines . . . 42
Nova Sylva Multipot Back Transporter . . . 43
Nova Sylva Tandem Trailer/Seedling Carrier . . . 44

Pruning
Seymour Climbing Tree Delimber/Debarker . . . 45

Scarification
Roto International A2 Forester . . . 46
Roto International Rotoclear Machine . . . 47
Percheron M2M Mechanical Disc Trencher . . . 48
Canadian Forest Equipment Disc Trencher . . . 49
Le Crabe Forestry Harrow . . . 50
Hawk Power Scalper . . . 51
La Taupe Clearing Saw Scarification Attachment . . . 52
Rodrique Metal Stump Chipper . . . 53

Seeding
Agric Aerial Seeder . . . 54
Fandrich Aerial Cone Rake . . . 55

Slash Disposal
Grizzly Whole Tree Chipper . . . 56
Rodrique Metal Brush Chipper . . . 57
Québec Ministére de l'Énergie et des Ressources La Terratorche Debris Burner . . . 58
Balderson/Felco Brush Burner . . . 59
Weldco-Beales Pocket Cyclone . . . 60

SILVICULTURE cont'd **Page**

Tree Planters, Manual
A & M Steelcraft Planting Tools . . . 61
Nova Sylva Carrot Extractor Dibble . . . 62
Forestworld Planting Bags and Tarps . . . 63
Neville Crosby Tree Planting Bags . . . 64
Nova Sylva Multipot Harness with Container Holder . . . 65
Nova Sylva Planting Bags . . . 66

Tree Planters, Mechanical
International Forestech Systems Silviplanters PB II and PB III . . . 67

Complementary Equipment

Shelters
Design Portable Shelter Systems . . . 68
Weatherhaven Portable Shelters . . . 69

Monitoring Instruments
Digitech's Memo System Micro Computer . . . 70
Mynic Auto Scaler/Cruiser . . . 71

Soil Samplers
Nova Sylva Soil Sampling Auger . . . 72

Multi-Purpose
Packrat Multi-Purpose Vest . . . 73

RITTENHOUSE SPRAYERS

The 200 LC plantation sprayer, trailer model with gasoline engine, shown here. Also available is the 500 LC plantation sprayer with P.T.O., and the 1500 LC trailer type, plantation air blast sprayer.

The Company manufactures sprayers specifically designed for forestry use, some trailer mounted. It makes available the model 3PTH Cannon sprayers, as well as estate sprayers equipped with a choice of booms, hand guns, or with cluster nozzles. It also produces back-pack sprayers in various sizes, and safety equipment such as masks, gloves, and goggles.

Operational Specifications

The model 200 LC is available in skid mount, or trailer versions. The skid mount design fits neatly in a lawn trailer. The trailer version can be pulled behind a garden tractor or ATV.

Applications are for spot spraying with hose and gun, or boom spraying of herbicide, insecticide, and fungicide.

The model 500 LC has an all hydraulic swing, tilt and blower drive, with booms available to 10 m (33 ft). The model 500 LC plantation sprayer gives an air blast application of herbicide, insecticide or fungicide.

The model 1500 LC also has an all hydraulic swing, tilt and blower drive. This model comes with a mechanical agitator, unlike the 500's jet agitation system. With a large 1500 litre capacity, it can provide an air blast application of herbicides, insecticides and fungicides over extensive forest areas.

Particular Specifications

Model	200 LC	500 LC	1500 LC
Overall length cm (in)	203 (80)	132 (52)	440 (173)
Overall width cm (in)	114 (45)	145 (57)	163 (64)
Overall height cm (in)	91 (36)	231 (91)	244 (96)
Weight kg (lb)	84 (185)	340 (750)	680 (1500)
Tank capacity L (I. gal)	200 (45)	500 (110)	1500 (330)

Mechanical Specifications

Tank material	fiberglass	fiberglass	fiberglass
Tires cm (in)	two 20 (8) w.f.	skid mount	two 38 (15) w.f.
Power kW (hp)	2.6 (3.5)	PTO 34 (45)	PTO 37 (50)
Pump L/sec (gal/min)	0.4 (6)	1.2 (18.5)	1.7 (27)
Drive	6:1 gearbox	PTO	PTO
Blower range m (ft)	—	30 (100)	30 (100)
Options	hose & gun boom	hose & gun hose reel	hose & gun hose reel

MANUFACTURER:

M.K. RITTENHOUSE & SONS LTD.

R.R. No. 3, 4th Avenue
St. Catharines, Ont.
L2R 6P9
TEL: (416) 684-8122
FAX: (416) 641-3820
TELEX: 061-5105

CONAIR AERIAL SPRAY SYSTEMS

Conair Aviation manufactures and operates a range of aerial spray systems for forest pest control. Photo shows the Conair system for the F27 Firefighter/ Fokker F27 aircraft.

Conair has developed aerial spray systems that can be adapted to a variety of spraying requirements, from both fixed-wing and rotary aircraft such as Douglas DC-6, Fokker F27, Aeritalia G-222, Lockheed C-130, Bell 205 and Bell 212. The spray systems consist of internal tanks and pump pallets, wing-mounted low-drag booms, pilot-operated computerized flow control equipment and various interchangeable nozzles, depending on droplet size requirements.

Operational Specifications

Removable, low-drag wing booms, have interchangeable nozzles to handle a variety of spray applications. Typical applications include oil spill control, pest and disease control, using fixed-wing and rotary-wing aircraft.

Particular Specifications

Model	Douglas DC-6	Fokker F27	Aeritalia G-222	Lockheed C-130
Total Useful Vol. L (Imp. gal)	13600 3(3090)	3785 (860)	3875 (881)	7750 (1760)
Loading Rate, L/min	1800	1514	1800	1800
Max. Flow Rate L/min	1800	1514	1800	3000
Coverage Level L/ha	0-180	0-100	0-180	0-280
Swath Width m	50-670	50-700	50-600	50-975
Weight Spray System kg	1137	698	1157	3650
Removal Time Hours	4	4	4	4

MANUFACTURER:

CONAIR AVIATION LTD.

P.O. Box 220
Abbotsford, B.C.
V2S 4N9
TEL: (604) 863-1171
FAX: (604) 853-9017
TELEX: 04-363529

KBM/BRACKE HERBICIDER

The Bracke Herbicider is designed to apply herbicides in conjunction with scarification treatments. A smaller amount of the total site can be treated more effectively, with more accurate placement, reducing much of the off-target drift.

The KBM/Bracke Herbicider is jointly manufactured by Robur Maskin AB in Bracke, Sweden and by KBM Forestry Consultants Inc. in Thunder Bay, Ontario, Canada. These Companies have co-operated to offer the one pass method of mechanical and chemical site preparation. High quality microsites, with chemical vegetation control, can be produced in a single operation.

Operational Specifications

The Bracke consists of two mattock wheels, each with four pairs of tines. These wheels are rotated by a chain drive actuated by the rubber support wheels. As the mattock wheels turn more slowly than the ground wheels, the tines are dragged through the ground and scarify patches.

With a herbicide tank capacity of 800 L (180 gal), some 2 hours of operation are obtained between fill-ups. Depending on site difficulty and chemical types used, production 0.6 to 1.4 hectares (1.5 to 3.5 ac) per hour can be obtained.

The Herbicider incorporates all the features of the standard two-row scarifier. Suitable prime movers are 82 to 112 kW (110 to 150 hp) skidders or 67 to 89 kW (90 to 120 hp) crawler tractors.

The Bracke performs best on flat to rolling sites with slopes up to 25%, light to medium slash, and loamy soils. It is poorly suited for working on very wet sites or sites with slopes steeper than 30%, heavy slash and/or high stumps, or duff layers greater than 25 cm. When negotiating short steep slopes, the Bracke can be let out on the winch line of the prime mover, and then winched back, to permit better mobility.

The Bracke can be used together with a V-plow in medium to heavy slash. It prepares between 1000 and 1500 planting spots per hectare.

The Bracke is a patch scarifier, and by creating only intermittent scalped patches, the Bracke minimizes the potential for overscarification and erosion.

Particular Specifications

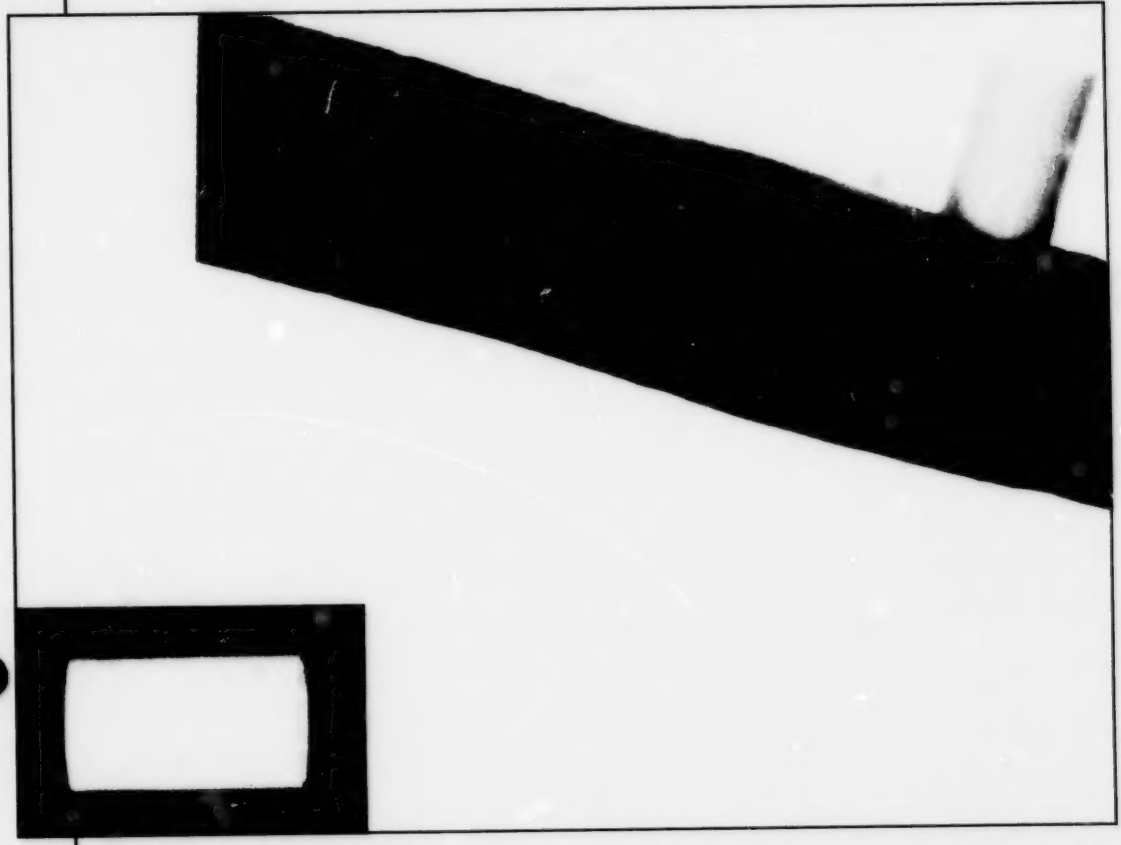
System weight kg (lb)	Dry	230 (500)
	Full	1043 (2300)
Tank:	Material mm	5 (0.2)
	Capacity L (gal)	800 (180)
	Residual volume L (gal)	4 (1)
Components:	Regulator KPa (psi)	0-350 (0-50)
Nozzles:	Location	Top of machine frame, rear of machine frame, boom location on top of tank.
	Type	1/4 npt ball fittings, and cluster broadcast individual nozzle regulators and check valves.
	Availability	System is compatible with any spraying systems nozzle tips of the tee jet, flood jet, disc, cone, and offset types.
Max. flow rate for the system L/min (gal/min)		11.1 (2.4) @ 10 km (6 mph)
Pump:	Type	Dual diaphram piston; inlet 2.5 cm (1 in), outlet 1.9 cm (3/4 in)
	Drive System	Chain to intermediate axle, with disconnect.

MANUFACTURER:

KBM FORESTRY CONSULTANTS INC.

360 Mooney Street
Thunder Bay, Ontario
P7B 5R4
TEL: (807) 344-0811
TELEX: 073-4603

GEL CAP INJECTION SYSTEM



GEL CAP capsule injection system is a controlled herbicide application system for forestry, utilities, municipalities, transmission companies, golf courses.

GEL CAP is a species specific, capsule, injection system (delivery system). ARBOUR CAP is the herbicide containing capsule. The GEL CAP Applications Tool consists of three components: Capsule Driver, a 40 cm (16 in) extension and a cordless electric drill.

Operational Specifications

The GEL CAP application tool has been designed to assist the operator in correctly applying capsules to the target species. By driving the capsule into the tree to the correct depth, it ensures a firm, secure attachment, and a liquid-tight seal. The operator picks up capsules from the cardboard sleeve, and applies them to the tree with a simple motion employing the cordless drill. Correct seating of the capsules is described on each carton containing 1000 capsules. The capsule driver must be adjusted to achieve the correct results.

GEL CAP'S uses include: right-of-way control (including transmission lines, distribution lines, pipelines, etc.), selective thinning, juvenile spacing, weeding, brushing and boulevard control.

Particular Specifications

One (1) Arbour Cap per 6 cm (2 1/2 in) of tree diameter at breast height
Refer to Monsanto's Vision (Roundup) for injection & other applications

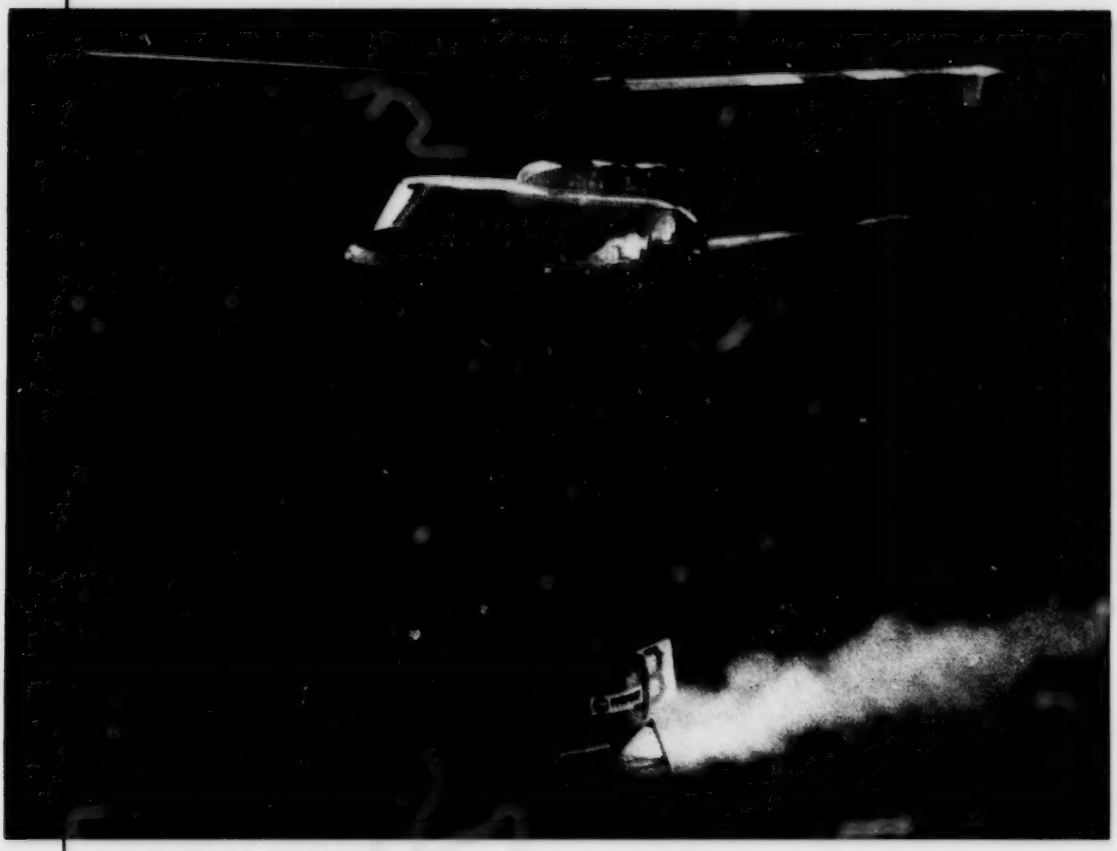
Capsule Driver	O-Ring, Socket, Locknut & Bushing
Extension cm (in)	41 (16)
Makita Model #6071D drill	0 to 600 rpm variable speed, reversible with AC/DC fast charger & metal carrying case

MANUFACTURER:

PACE CHEMICALS LTD.

8321 Willard Street
Burnaby, B.C.
V3N 2X3
TEL: (604) 520-6211

CONAIR AERIAL FERTILIZER SPREADER



Bell 205 helicopter applying nitrogen fertilizer with Conair's 1500 kg capacity spreader. Swath guidance is provided by multiple remote ground transponders and an on-board computer.

A total systems approach to aerial fertilization, from preliminary planning and staging, through to final application.

Physical Specifications

Capacity kg (lb)	1500 (3307)

Mechanical Specifications

Power	Two-cycle engine
Min. flying height m (ft)	30 (98)
Swath guidance	Del Norte Navigation System
Distance between transponders km (mi)	1-30 (0.6-18.6)
Total swath width m (ft)	66 (217)
Effective swath width m (ft)	22 (72)
Daily productivity ha (ac)	Up to 200 (494) ha (ac)/helicopter

Operational Specifications

The system is a part of the integrated railhead to forest floor fertilizer delivery system, developed and operated by Conair and its subsidiary Frontier Helicopters.

The client normally orders bulk fertilizer delivered to the rail siding in 90 tonne cars. The cars are subsequently unloaded, and the fertilizer is weighed at the rail siding, placed into special 1500 kg containers, which are trucked to the heliport. At the heliport, a 1500 kg container of fertilizer is loaded directly into the spreader which is suspended beneath the helicopter.

Aerial application takes place during spring and fall when the fertilizer is dissolved by the seasonal rains and washed into the forest floor. Growth response is usually evident in the stand after one year, and is continuous for up to five years.

MANUFACTURER:

CONAIR AVIATION LTD.

P.O. Box 220
Abbotsford, B.C.
V2S 4N9
TEL: (604) 853-1171
FAX: (604) 853-9017
TELEX: 04-363529

C & H PLOW

The C & H plow is a V-plow that mounts to the C-frame of a crawler tractor.

Cazes and Heppner are manufacturers of site preparation attachments, such as the V-plow, model SP 609. The plow clears a continuous slash-free strip improving planting access and ease of planting, while providing better microsite for seedling growth.

Particular Specifications

Length m (ft)	2.0 (6.6)
Width m (ft)	3.2 (10.5)
Height m (ft)	1.9 (6.2)
Weight kg (lb)	3090 (6812)

Mechanical Specifications

Prime mover required: D6 or D7, TD20, D65 Komatsu type crawler tractors

Designed to fit the C-frame, clamped by large bolts

Operational Specifications

The C & H plow is designed to prepare a continuous slash-free strip of mineral soil 2.5 m (6.4 ft) ahead of planting. The amount of soil and humus disturbance can be controlled by adjusting the setting of the plow.

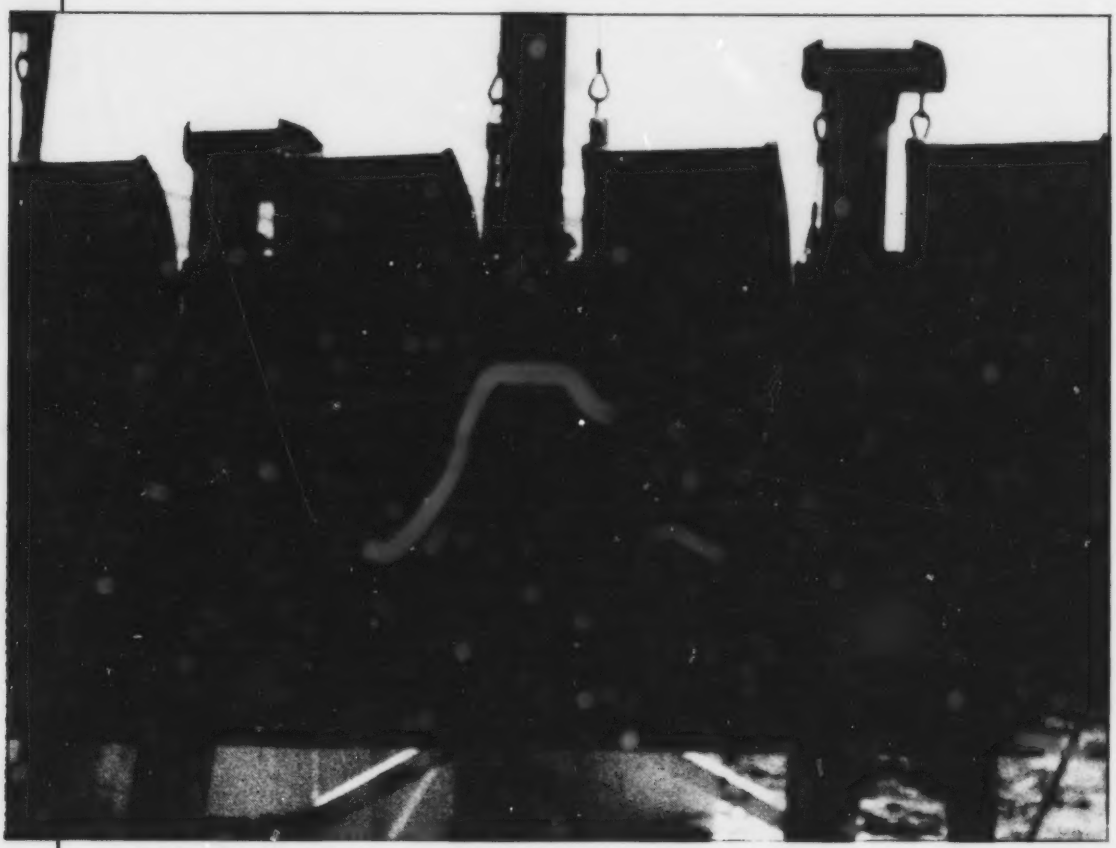
The C & H plow is best suited to sites with even to rolling terrain, of slopes less than 25%. It is used on deep duff and moderate to heavy slash where it produces a well defined planting trail. It has been reported to have a higher productivity, and less costs than a brush blade on similar sites.

MANUFACTURER:

CAZES AND HEPPNER FOREST SERVICES LTD.

Box 2037
Clearbrook, B.C.
V2T 3T8
TEL: (604) 853-0674

C.F.E. SLASH RAKE



The CFE Slash Rake is manufactured by CFE in Edmonton, similar in design to the German made Raumfix slash rake

Canadian Forestry Equipment Ltd. manufactures, sells and leases a complete line of silvicultural site preparation equipment. In addition to scarifiers, disc trenchers, rakes, and plows, the Company handles the Timberwolf Brush Cutter, G.K. Forest Sprayer, herbicide attachments for disc trenchers, silvicultural prime movers and carriers, as well as fire pump kits.

Different models of slash rakes equipped with 4,5,6, and 7 teeth are available for mounting on rubber tired skidders.

Operational Specifications

The C.F.E. slash rake is equipped with 4, 5, 6, or 7 spring loaded teeth which are designed to move up and down on tracking guides when obstacles are encountered. This is particularly useful as it prevents uprooting of stumps, reduces ground disturbance, and minimizes the soil pushed into the windrows or piles.

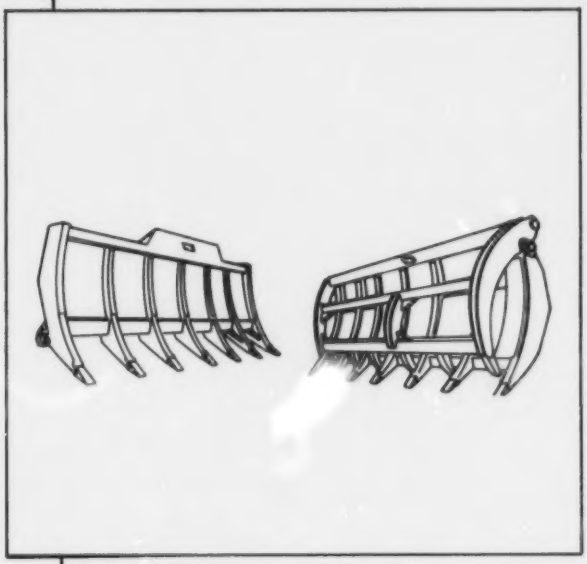
The rakes are used to pile slash and scarify at the same time. They are particularly efficient for clean-ups on mechanical delimber operations.

MANUFACTURER:

Canadian Forestry Equipment Ltd.

17212 - 106 Avenue,
Edmonton, Alta., T5S 1H9
TEL: (403) 484-6687

WELDCO-BEALES LAND CLEARING BLADE AND GRAPPLE RAKE



Weldco-Beales Land Clearing Blade (left), and Grapple Rake (right).

Weldco-Beales is a major manufacturer of forestry attachments, and produces land clearing blades, C-frames (CBB series) or straight land clearing blades (SBB series), as well as Grapple Rakes (GR series)

Operational Specifications

Land clearing blades are designed for efficient piling and stacking applications. Cast curved teeth are spaced to comb the ground, and the shaped teeth to cut tree roots.

W.B Grapple Rakes come with full roll back action; the overhanging grapple arm permits raking in both directions. With this attachment, the operator can stack, load and remove logs and boulders with ease. They can be used for feeding small logs, brush and slash to the chipper.

Land clearing blades are available in either C-frame or straight dozer versions. The straight blades mount interchangeably with the standard dozer blade, while the C-frame comes complete with sidearms, no centre pin, thereby permitting quick and easy mounting.

Special rock rakes are also available, with additional teeth installed, as required.

Particular Specifications

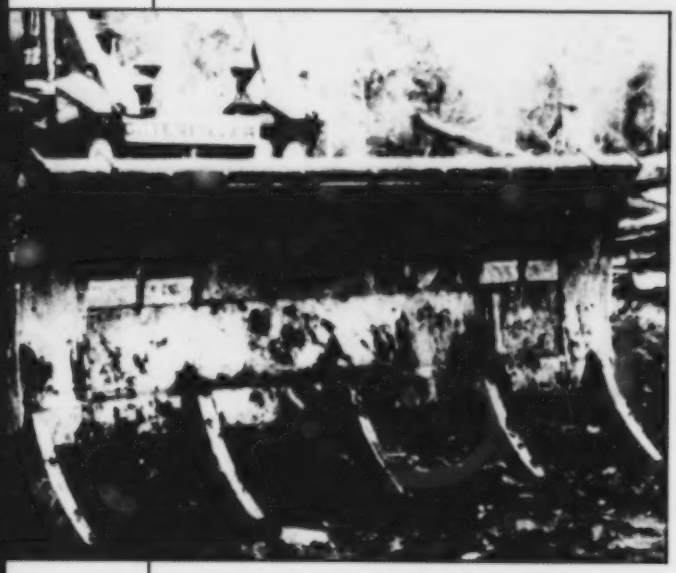
Tractor Model	Attach Class	Blade Model No.	Blade Information Length	Tooth Penetr.	Tooth Spacing	Approx. Wt. Kg (lb)
D3 TD7, 8	110	CBB2	223(88)	31(12)	38(15)	499(110)
D20, JD350, JD450, Case	350	SBB2	234(92)	31(12)	41(16)	590(1300)
D4, TD9, FA8, Case 850, JD550	160	CBB3	272(107)	46(18)	53(21)	680(1500)
		SBB3	251(99)	46(18)	48(19)	748(1650)
D45/50	185	CBB4	312(123)	46(18)	51(20)	862(1900)
1150		SBB4	284(112)	46(18)	45(17.5)	907(1200)
D5/D6, TD15, FA10	185	CBB5	320(126)	46(18)	53(21)	1293(2850)
1150		SBB5	302(119)	46(18)	43(17)	1315(2900)
D65, FA14, JD850	235	CBB6	350(138)	46(18)	61(24)	1338(2950)
		SBB6	328(129)	46(18)	53(21)	1361(3000)
D7G, TD20E, D814A,	260	CBB7	353(139)	46(18)	57.8(22)	1701(3750)
8220, FA16		SBB7	328(129)	46(18)	53(21)	1588(3500)
D85E	310	CBB8	381(150)	48(19)	63)25)	1769(3900)
		SBB8	351(138)	48(19)	57(23)	1792(3950)
D8K, TD25, D125	360	CBB9	376(148)	53(21)	53(21)	2087(4600)
FA21, 82, 30B, HD21		SBB9	376(148)	53(21)	53)21)	2177(4800)
D9K, D155, D8L, FA31	390	CBB10	450(177)	58(68)	55(21)	3720(8200)
		SBB10	399(157)	58(68)	56(22)	3856(8500)
D9L, FA41, 355	410	CBB11	457(180)	60(23)	58(23)	5443(12000)

MANUFACTURER:

Weldco Beales

#410 - 6450 Roberts Street
Burnaby B.C., V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-55103

BALDERSON/FLECO LAND CLEARING AND FORESTRY BRUSH BLADES AND RAKES



Brush Blades and Rakes are available in various versions for root raking, windrowing and piling. Versions with welded fixed position teeth, and with bolt on movable teeth are both available.

The Balderson/Fleco model MA (multi-application) Rake, Rock and Root Rakes, Clamp Rakes, Clearing Rakes, Stacker Rakes, Blade Rakes, and Root Plows are available from Balderson. They are used in right-of-way preparation, land clearing and reforestation work. Various styles are available for root raking, windrowing and piling.

Rakes are built for wheel loaders, track loaders and dozers. Several versions with welded, fixed position teeth, or with bolt-on, moveable teeth, are available.

PRICE: For Cat D6H c/w push arms and trunnions, price of brush rake is list $7100.00, F.O.B. Edmonton, Alta. (1988). Delivery in 4 to 6 weeks.

Operational Specifications

The heavy duty clearing rake is an appropriate tool for heavy land clearing. The rake easily removes trees, grubs stumps and clears rocks. Matched to the new Cat high sprocket tractors, these rakes have good reach for tree pushing, as well as strength for prying.

The multi-application (MA) rake is used for clearing of large trees, stumps and boulders, with replaceable wear tips, a brush rack and a steel plate in the centre of the frame for optimal service.

The blade rake is used in conjunction with straight blades, recommended for piling limbs and tops, grubbing brush and light to medium duty raking. As this rake is pinned, it swings away from the blade, when backing.

The clamp rake is extremely versatile for general land clearing. Used for grubbing brush, stumps and rocks, as well as raking, piling and loading debris, with minimum spillage due to the good retaining action of the integral clamp.

Particular Specifications

Heavy Duty Clearing Rake:

Caterpillar Model	D8N		D7H		D6H	
	Straight	Angle	Straight	Angle	Straight	Angle
Balderson Model	BCR8S	BCR8A	BCR7S	BCR7A	BCR6S	BCR6A
Rake Width mm	3607	4013	3607	3937	3353	3581
(in)	(142)	(158)	(142)	(155)	(132)	(141)
Rake Height mm	2032	2032	1956	1956	1753	1753
(in)	(80)	(80)	(77)	(77)	(69)	(69)
Number of teeth	9	9	9	9	9	9
Approx. Weight kg	2630	2565	2405	2270	1405	1295
(lb)	(5800)	(5650)	(5300)	(5000)	(3100)	(2850)

Blake Rake:

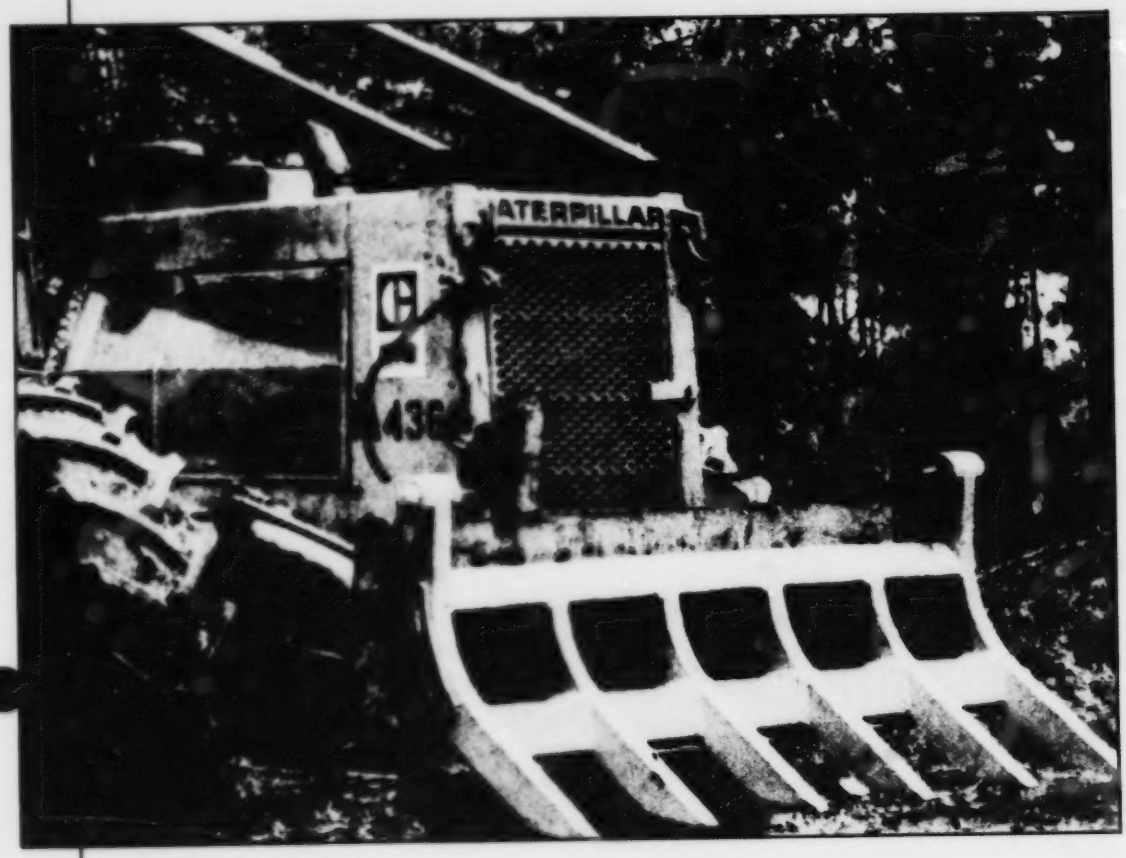
Width	2007 mm (79 in)
Height	762 mm (30 in)
Tooth Penetration	381 mm (15 in)
Tooth Length	737 mm (29 in)
Opening at Tooth Tips	343 mm (13 1/2 in)
Number of Teeth	6
Total Weight	323 kg (713 lb)

MANUFACTURER:

BALDERSON CANADA LTD.

6400-30 St.
Edmonton, Alta.
T6P 1J6
TEL: (403) 469-9185
FAX: (403) 469-9256

BALDERSON/FLECO BLADE RAKE



The Balderson blade rake on the Cat 518 skidder is shown here. Note how the frame of the rake fits against, and is supported by, the skidder blade.

Designed by Balderson for the Cat 518 Skidder or equivalent size skidder. Available as Balderson model BL 518 rake attachment, which mounts on the normal skidder dozer blade.

PRICE: For a Cat 518 skidder, or equivalent, list $2,100.00. F.O.B. Edmonton, Alta. (1988). Delivery in 3 to 4 weeks.

Particular Specifications

Width mm (in)	2007 (79)
Height mm (in)	762 (30)
Tooth Penetration mm (in)	381 (15)
Tooth Length mm (in)	737 (29)
Opening at Tooth Tips mm (in)	343 (13 1/2)
Number of Teeth	6
Total Weight kg (lb)	323 (713)

Operational Specifications

Designed for grubbing and light brush piling, the rake attachment mounts on the normal skidder dozer blade. It broadens the work range of the skidder to include piling of limbs and tops, grubbing brush around the landing, and light to medium duty raking.

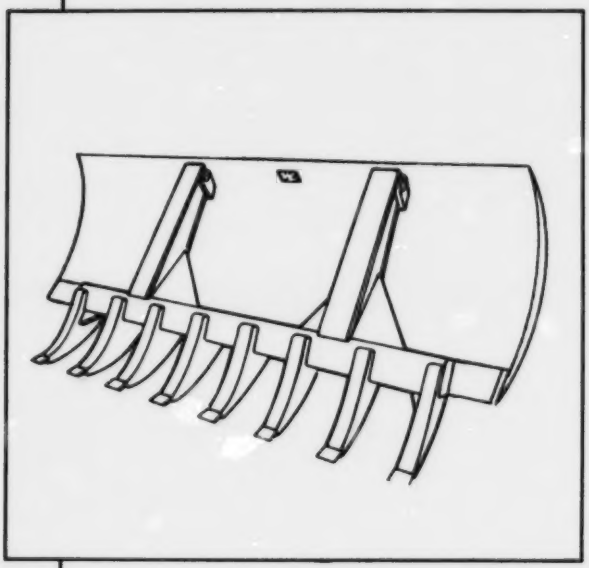
Two sets of mounting brackets must be welded to the top of the blade before the rake can be installed. The mounting brackets are supplied with the blade rake. This simple method of mounting reduces the amount of time required to put on, or take off the rake. The pin type mounting allows the rake to swing away from the blade so that material which has been piled, is not dragged back from the window. It also allows the blade to be used for backblading to fill holes left in the cleared area.

MANUFACTURER:

BALDERSON CANADA LTD.

6400 30th Street
Edmonton, Alta.
T6P 1J6
TEL: (403) 469-9185
FAX: (403) 469-9256

WELDCO-BEALES MOULD BOARD RAKE



Mould Board Rake, Model MBR, ideally suited to the contractor who has a small amount of brush to be removed.

Available in models MBR2 to MBR6 to fit tractor models D3 to D8K. The manufacturer, Weldco-Beales, are specialists in the design and manufacture of equipment and attachments for the forest industry with a wide range of products.

Operational Specifications

The mould board rake is designed for small brush removal and land clearing. Once the weld-on brackets are installed, the rake may be removed or re-installed in a few minutes.

Special lengths of rakes are available on request.

Particular Specifications

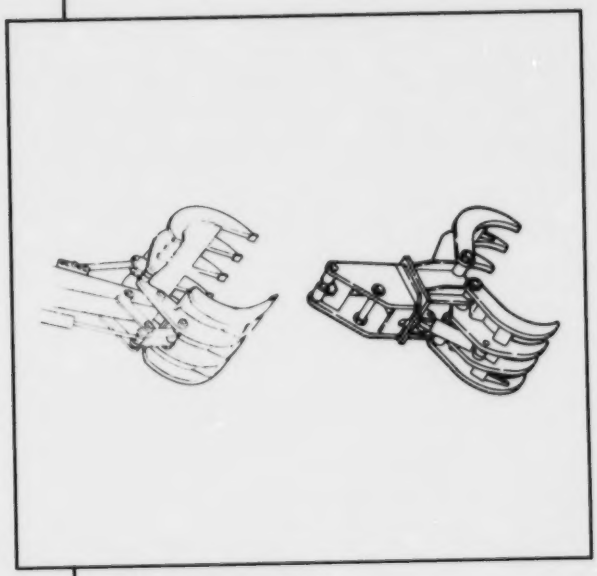
Tractor Model	Attachment Class	Mold Board Model	Mold Board Rake Information: Rake Length cm (in)	Tooth Penet. cm (in)	Tooth Space. cm (in)	Tooth Thick. cm (in)	Appr. Wt kg (lb)
D3,TD7+8 D20JD350/450 D4,TD9,FA8 Case850,JD550 D45/50,1150, D5/D6,TD15 FA10, 1450,D55/60	110	MBR2	183(72)	38(15)	36(14)	4(1.5)	304 (670)
JD750 D65,FA14,JD850	160	MBR3	213(84)	38(15)	41(16.5)	3.8(1.5)	386 (850)
8220,FA16 D8K,TD25,D125 FA21,82-30B,HD21	210	MBR4	254(100)	43(16)	43(16(	5(2)	567 (1250)
	260	MBR5	274(108)	48(19)	38(15)	6.4(2.5)	930 (2050)
	360	MBR6	305(120)	53(21)	43(16)	8(3)	1270 (2800)

MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts St.
Burnaby, B.C., V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-55103

WELDCO-BEALES BRUSH AND CLEARING RAKES



Weldco Excavator Brush Rake (left), and the Power Clearing Rake (right).

The Company are specialists in the design and manufacture of machines and attachments for the forest industry with a wide range of products.

Weldco-Beales manufactured rakes models BR 2 to 5, and PR 42, 54, fit most excavators in the 0.19 m^3 (0.25 yd^3) to 1.9 m^3 (2.5 yd^3) capacities.

Operational Specifications

Excavator brush rakes are designed for raking, stumping, and handling bulky materials. In forestry, they are particularly useful in meeting the grubbing and cleaning needs.

The power clearing rake allows the operator to land, clear, build a burning pile; load logs, etc.

Particular Specifications

EXCAVATOR BRUSH RAKE

Machine Size m^3 (yd^3)	Model	Open cm (in)	Closed cm (in)	Width cm (in)	Weight kg (lb)
0.19 to 0.57	15BR2	244 (96)	30 (12)	91 (36)	975 (2150)
0.76 to 0.96	25BR3	279 (110)	38 (15)	121 (48)	1360 (3000)
1.05 to 1.34	35BR4	325 (128)	46 (18)	137 (54)	1644 (3625)
1.43 to 1.91	45BR5	356 (140)	51 (20)	137 (54)	2019 (4450)

Optional: Hydraulic cylinder kit which allows full control of the rake bottom (extra valve required).

POWER CLEARING RAKE

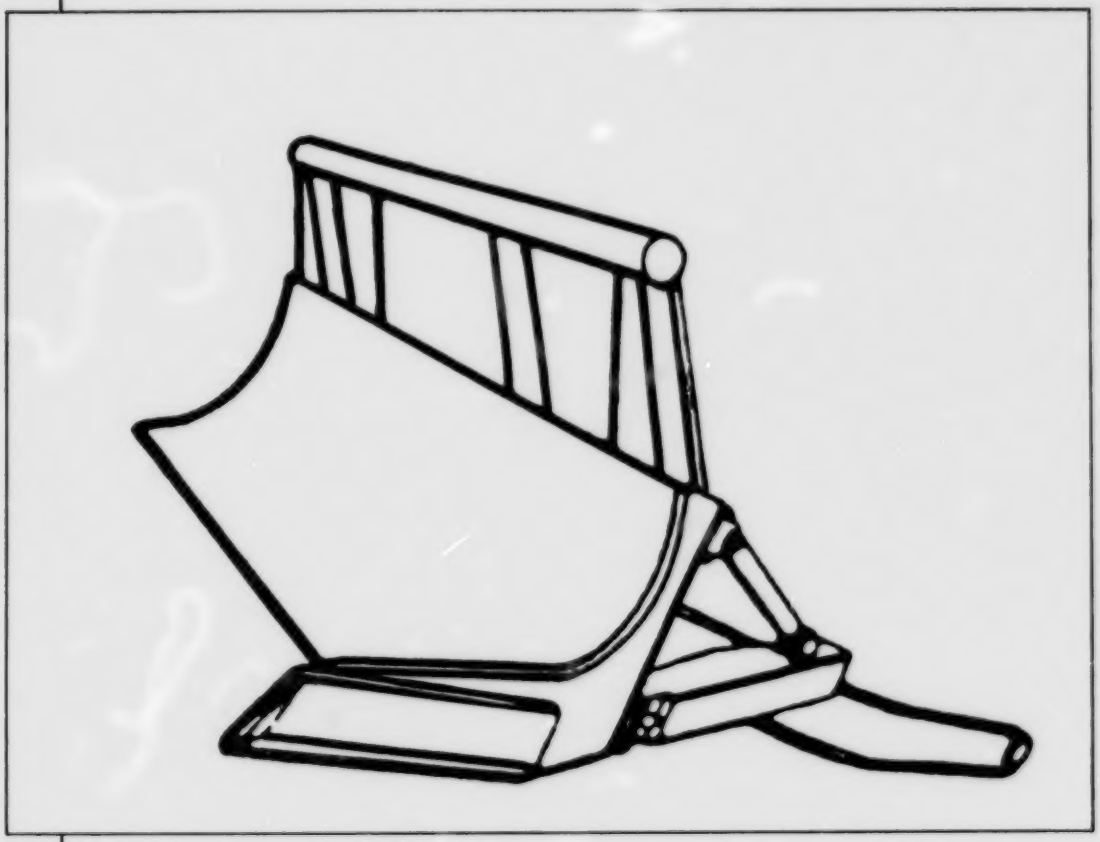
Machine Size m^3 (yd^3)	Model	Opening cm (in)	Closing cm (in)	Width cm (in)	Weight kg (lb)
0.76 to 0.96 (1 to 1 1/4)	25PR45	114 (45)	15 (6)	91 (36)	1497 (3300)
1.05 to 1.34 (1 3/8 to 1 3/4)	35PR54	147 (58)	36 (14)	107 (42)	1860 (4100)

MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts St.
Burnaby, B.C.
V5G 4E1
TEL: (604) 294-2222
FAX: 294-1292
TELEX: 04-55103

ONE WAY BRUSH CUTTER



Weldco-Beales One-way Brush Cutter to fit standard tractor models

The Company are specialists in the design and manufacture of machines and attachments for the forest industry with a wide range of products.

Three Weldco-Beales brush cutter models are available, all with built in splitter, to fit tractor models D3 to D9.

Particular Specifications

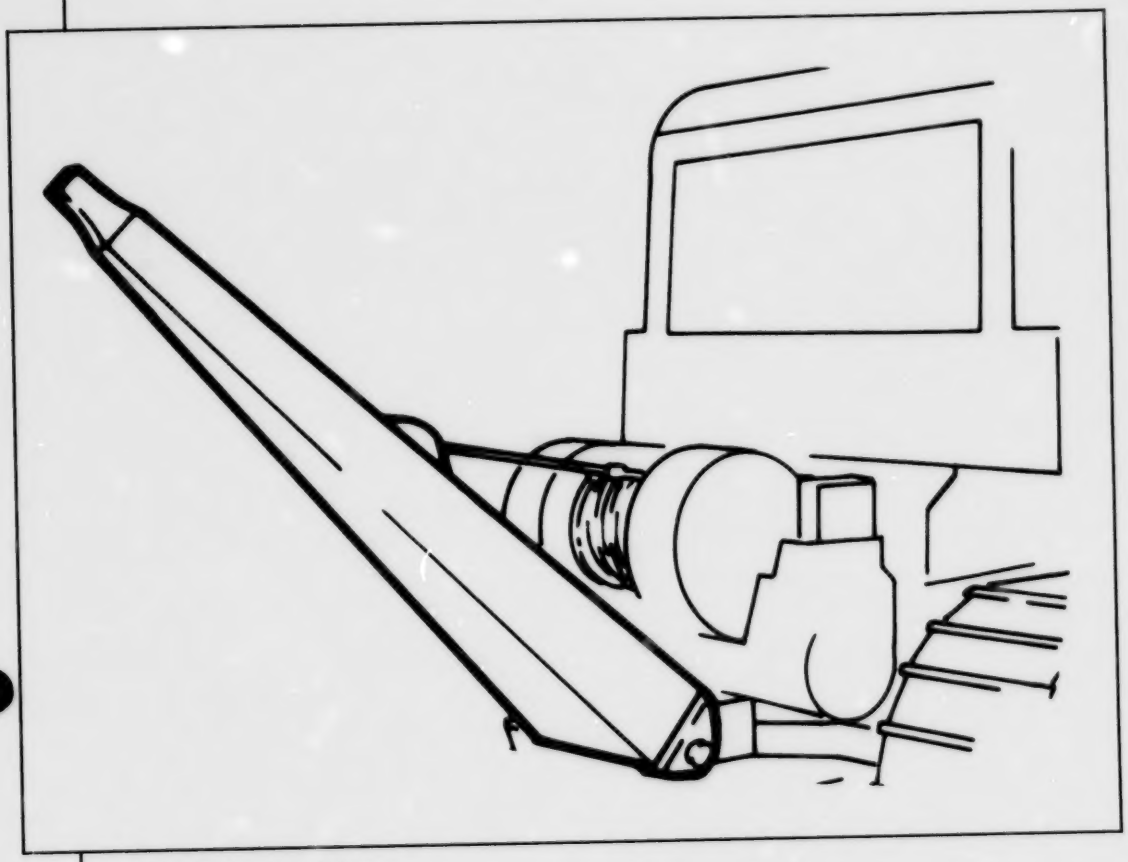
Serrated or straight edge
Supplied with rigid struts for C-frame mounting
Optional heavy duty bumper
For custom designs, consult the manufacturer

MANUFACTURER:

Weldco-Beales

**#410 - 6450 Roberts St.
Burnaby, B.C., V5G 4E1
TEL: (604) 294-2222 FAX: (604) 294-1292
TELEX: 04-55103**

WELDCO-BEALES STUMP SPLITTERS



Weldco-Beales stump splitter with winch operation.

The Company are specialists in the design and manufacture of machines and attachments for the forest industry, with a wide range of products.

Weldco-Beales manufactures stump splitter models to fit tractors D4 to D8, or equivalent.

Operational Specifications

Weldco-Beales stump splitters are available for use with Hyster, Carco, and Caterpillar winches. These are adaptable to any ripper tool bar. Hydraulic operation is available, when no winch is required.

Particular Specifications

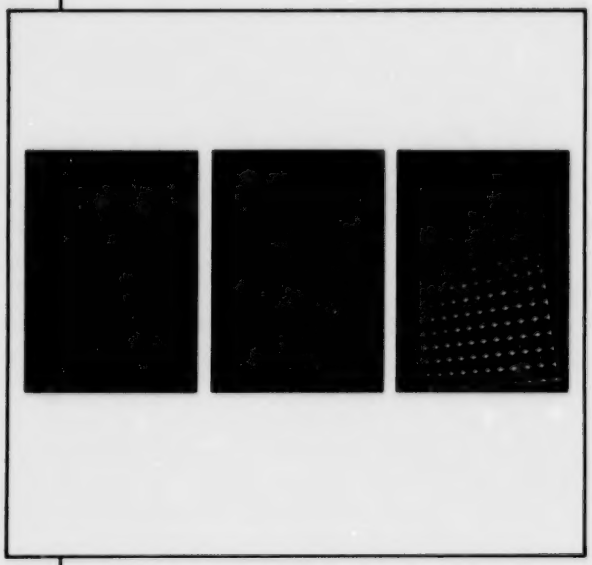
Tractor Model	Attachment Class No.	Model	Splitter Length cm (in)	Approximate Weight kg (lb)
D4/D6	175/235	SS2	274 (108)	794 (1750)
D7/D8	260/390	SS3	229 (90)	953 (2100)

MANUFACTURER:

WELDCO-BEALES

#410 - 6450
Roberts St.
Burnaby, B.C.
V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-55103

JIFFY'S SEEDLING PROPAGATION SYSTEM



Jiffy-7 pellets (container and substrate) are supplied pre-laid on transport sheets, to fit double in 94.5X36.2cm(37.2X14.25in) transport trays.

Jiffy's seedling propagation system is available in seedling propagation peat pellet models 70, 140, 165; and in Jiffy model 7, horticultural peat pellets. The Company also supplies seeded trays, ready for misting, for the small growers.

Operational Specifications

Seedlings are grown in a pure peat pellet, with root penetrable webbing. The pellet provides good germination, and growing conditions, and results in a product which suits handling and planting techniques.

The system is reported to be cost effective, and competitive with paper pots.

Particular Specifications

Pellet Specifications

	#70	#140	#165
Size			
Before exp.	42 X 12	30 X 12	28 X 12
After exp.	43 X 60 to 65	31 X 60 to 65	30 X 60 to 65
Cube cm^3	Approx. 90	Approx. 46	Approx. 40
Dry Matter	14.0 gr	8.5 gr	7.5 gr
Soil Ph	4.5 to 15	8.5 to 5	4.5 to 5
Fertilizer	Optional	Optional	Optional

System Specifications

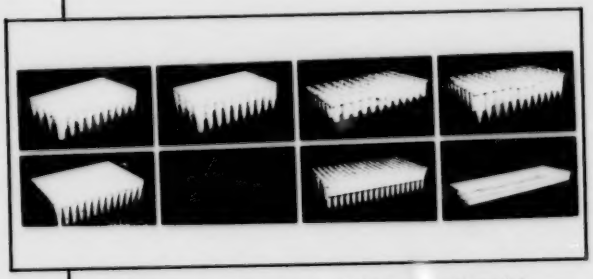
	#70	#140	#165
Pellets/sheet	7 X 10 = 70	10 X 14 = 140	11 X 15 = 165
Density u/m^2			
In tray	409	818	965
On sheet	459	918	1082
Pellet/carton	1120	1960	2310
Wt/carton, kg	15	17	15
Carton/pallet	25	25	25

MANUFACTURER:

Jiffy Products Ltd.,

Industrial Park,
Shippigan, N.B., E0B 2P0
TEL: (506) 336-2284 FAX: (506) 336-9609
TELEX: 014-24542

ROPAK MULTI-POT SEEDLING TRAYS



Ropak multi-pot liner trays available in eight models

Ropak manufacturers a variety of Multi-pot tray choices, with a choice of cavity volumes, and cavity spacing. Available in eight models TR1 through TR6, ASDLGTR, and PAPERTR.

Operational Specifications

Ropak's seedling growing trays are constructed of high density polyethylene plastic. Life durability is expected to be about 6-10 years. There are eight models with varying seedling densities and cavity rooting volumes. In 1987, North American forestry usage of these trays produced approximately 200,000 seedlings.

Particular Specifications

Product Code	Product Name	Dimensions mm (in.) Length	Width	Height
SEEDTR1	Multi-Pot # 1-67	356 (14.0)	222 (8.75)	889 (3.50)
SEEDTR2	Multi-Pot # 2-67	356 (14.0)	222 (8.75)	121 (4.75)
SEEDTR3	Multi-Pot # 3-96	619 (24.0)	356 (14.0)	122 (4.80)
SEEDTR4	Multi-Pot # 4-96	619 (24.0)	356 (14.0)	168 (6.60)
SEEDTR5	Multi-Pot # 5-104	356 (14.0)	244 (9.62)	89 (3.50)
SEEDTR6	Multi-Pot # 6-45	356 (14.0)	222 (8.75)	121 (4.75)
ASDLGTR	PCA313A Seedling Tray	619 (24.0)	356 (14.0)	133 (5.25)
PAPERTR	Propagation Tray	940 (37.0)	356 (14.0)	76 (3.00)

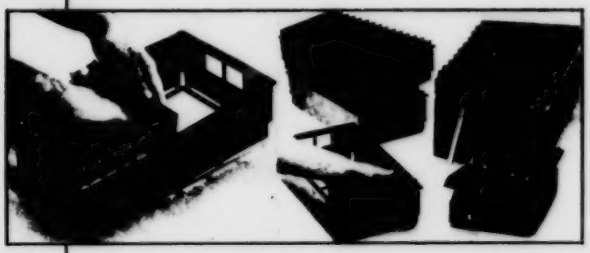
Product Code	Cavity Volume cm^3 (cu. in.)	Cavities Per Tray	Cavity Dia. mm (in.)	Cavities Per m^2 (sq. ft.)
SEEDTRI	57 (3.5)	67	32 (1.25)	850 (79)
SEEDTR2	66 (4.0)	67	32 (1.25)	850 (79)
SEEDTR3	98 (6.0)	96	38 (1.50)	441 (41)
SEEDTR4	147 (9.0)	96	38 (1.50)	441 (41)
SEEDTR5	49 (3.0)	104	1X32 (1X0.25)	1206 (112)
ASDLGTR	57 (3.5)	198	25 (1.00)	915 (85)
PAPERTR	— —	—	— —	— —

MANUFACTURER:

Ropak Can-Am Ltd.,

P.O. Box 340, Springhill Industrial Park
Springhill, Nova Scotia
B0M 1X0
TEL: (902) 597-3787
FAX: (902) 597-8318

SPENCER-LEMAIRE SEEDLING GERMINATION AND CONTAINER SYSTEM



Rootrainer containers for growing plants from seed and cuttings are available in 8 sizes. Unfolding containers enables the user to monitor the seedling condition, making extraction easy.

Rootrainers come in eight sizes with four fitting the standard polypropylene open-bottomed trays, and folding steel frames holding the larger sizes.

Germination boxes and Filling Machines are also manufactured by Spencer-Lemaire.

Operational Specifications

Rootrainers are made from Dow styron plastic. Alternative materials are optional.

Ferdinands are most often used for growing lodgepole pine, white spruce and black spruce. At 102 cells per tray, a bench density of 1253 per square metre is obtained.

Fives are used for jackpine, yellow cedar, Sitka spruce, loblolly pine and eucalyptus.

Sixes are used for the larger pines, redwood, Douglas-fir, red cedar. Twelve books fit into a standard tray, producing 72 cells.

The Hillsons are used for larger seedlings, ponderosa pine, macadamia nut, hemlock, native trees and shrubs for shallow soil, rocky conditions. They are often used for starting selected cuttings in the horticultural field, with 32 cells per tray.

Tinus is used for shelterbelts, poplar, oak, sycamore, cashew, walnut, birch, elm and fruit trees.

Super 45's are used for tropicals, large cuttings, reclamation, native plants, hybrid poplar, for deep soil, dry sites. Folding steel frames hold 40 cells of Tinus and 27 cells of Super 45's.

Marx X one cells, are used for individual commercial nursery plants. The 1 litre, which are 4 Marx X together, some 30.5 cm (12 in) wide, are used for larger plants and cuttings. These fit 4 books to a dairy case, on 3-inch centres.

Particular Specifications

Rootrainers Type Size	Cell Vol. in³	Cell Vol. ml	Cell Size cm (in)	Cells per Book	Cells per Tray	Trays per Case	Books per Case	Prices / Case (varies / vol) CDN $ (1988)
Ferdinands	2.5	40	1.9x1.9x10 (¾x¾x4)	6	102	30	500	80 to 65
Fives	3.8	65	2.5x2.5x10 (1x1x4.25)	5	70	36	500	95 to 80
Sixes	5.5	90	2.5x2.5x14 (1x1x5.5)	6	72	42	500	110 to 95
Hillsons	10.5	175	3.8x3.8x13 (1.5x1.5x5)4	32	63	500	135 to 120	
Tinus	21.5	350	3.8x5.1x20 (1.5x2x8)	4	40	25*	250	135 to 120
Super 45	45	750	5.1x6.4x25 (2x2.5x10)	3	27	11*	100	115 to 100
Marx X	80	1300	7.6x7.6x25 (3x3x10)	1	--	Tube	300	140 to 125
1 Litre 4 Cell	80	1300	7.6x7.6x25 (3x3x10)	4	16	25**	100	180 to 165

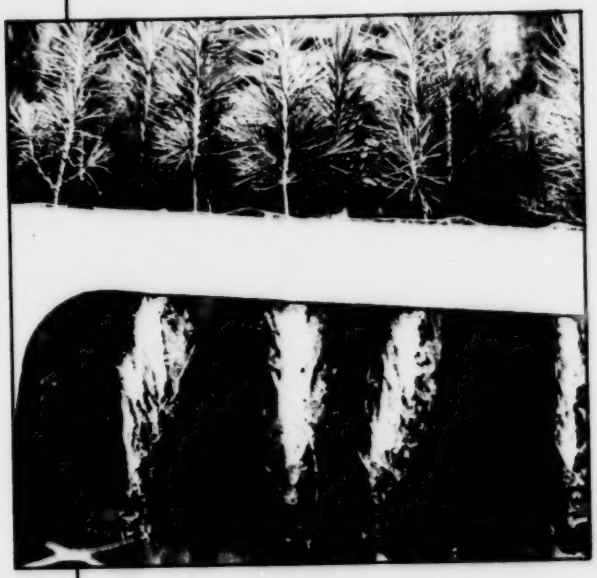
Trays	Sizes cm (in)	Prices CDN $ (var. with quantity)
Folding or Rigid	21.6x36.1x10.2 (8.5x14.5x4)	1.05 to 0.95
Tinus Toter (5 books)	21.6x25.4x17.8 (8.5x10x7)	2.05 to 1.85
*Plastic Folding Frame	26.7x43.2x15.2 (10.5x17x6)	[illegible]0 to 3.75
**Dairy Cases	33.0x33.0x26.7 (13x13x10.5)	5.35 to 4.50

MANUFACTURER:

Spencer-Lemaire Industries Ltd.

11413-120 St. Edmonton, Alta T5G 2Y3 TEL: (403) 451-4318, 451-4319 FAX: (403) 452-0920 TELEX 037-2966

XYLON TREE SEEDLING CONTAINERS



The International Forestech System produces in the nursery protected seedlings, and in the field mechanized planting processes.

The company produces two tree seedling containers, called the Xylon I cartridge, and the Xylon II container. It also produces two mechanical planters, Forestech's Silvaplanter models PB II and PB III, which make high speed automated planting possible.

Operational Specifications

Xylon I: The Xylon I cartridge is planted along with the seedling and splits open as the tree grows. The container offers excellent handling characteristics in the nursery and in the field. Seedlings suffer minimal damage as a result of handling, since the seedling need never be removed from the container. The cartridge can be machine planted with International Forestech's Silvaplanter PB II planting machine.

Xylon II: The Xylon II container offers improved handling of seedlings, in that seedlings can be singularly processed while still in their protective film casing. This guards against moisture loss and soil-plug deterioration during shipping and handling. Xylon II's are also available in a copper coated form which produces natural seedling root systems. Xylon II can be employed with a supporting rack, or as an insert in conventional containers.

1. Xylon I, 4-piece plastic seedling cartridge, with seedlings
2. Xylon II plastic film seedling container, in the rack.

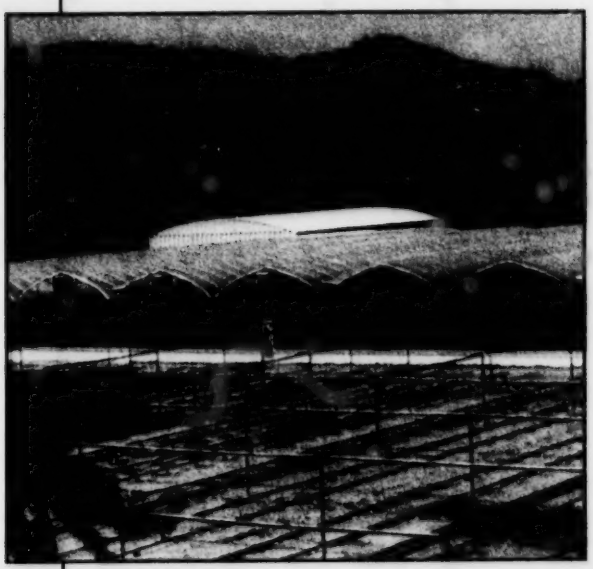
Particular Specifications

Xylon I	Xylon II
4-piece construction	Thin plastic film construction, perforated for singulation of cells
Polystyrene plastic	Durable polystyrene rack
Cartridge dimensions, cm (in.)	Variable configurations
10 (3.9) x 2.2 (0.9) x 2.2 (0.9)	
	Variable sizes
Soil volume, cm^3 ($in.^3$) 30 (1.8)	Option: Copper coating

MANUFACTURER:

International Forestech Systems Ltd.,
120-2620 Simpson Road, Richmond, B.C., V6X 2P9
TEL:(604) 273-1243
FAX: (604) 273-8852

HARNOIS GREENHOUSE SYSTEMS



Plastigro tunnels are an inexpensive way to cover a large growing surface.

Harnois are manufacturers of greenhouses, shadehouses, shelters, irrigation equipment, control, heating, artificial snowmaking equipment, and complete turnkey projects. The Company's technical department will design special structures to meet buyers needs. Harnois Industries manufactures the Nordique, a gutter connected greenhouse, Plastigro tunnels, and the Harnois shadehouse structures.

Operational Specifications

The Nordique is a gutter connected greenhouse, with oval shaped ribs for strength, and curved purlins to promote natural snow shedding. It can be covered with a combination of materials.

The Plastigro can best be utilized for reforestation, usually using a single film cover. Easy to assemble of galvanized, tubular steel with ends interconnecting. Parts are also easy to transport, as they are a maximum 15 feet long.

Shadehouses are all galvanized steel and can cover areas of all sizes. They are available in basic spacing of 6.1 m (20 ft) x 6.1 m (20 ft), and 7.3 m (24 ft) x 7.3 m (24 ft). Other dimensions are available on request.

Particular Specifications

Model	Nordique 21	Plastigro
Width, ft (m)	6.5 (21.3)	7.62 (25) 9.14 (30)
Side Height, m (ft)	2.44 (8)	
	3.00 (10)	
	3.66 (12)	
Span length, m (ft)	7.06 (23.17)	11.2 (37) 12.9 (42.3)
Centre Height, m (ft)	4.11 (13.5)	3.2 (10.3) 3.5 (11.5)
	4.72 (15.5)	
	5.33 (17.5)	

MANUFACTURER:

Harnois Industries Inc.

1044 Principle St.
P.O. Box 150
St-Thomas (Joliette), Que.
J0K 3L0
TEL: (514) 756-1041
FAX: (514) 756-8389

VARY GREENHOUSE SYSTEMS

Vary gutter-connected greenhouse installation on the left and the Vary free standing greenhouse on the right. Vary greenhouses are shipped to the purchaser ready for field assembly.

The Company are manufacturers of the Vary's Gothic Arch, freestanding, and gutter-connected greenhouses; Thermofilm IR covering; Vary pro-fit rolling bench; Root Zone bottom heat systems; Vary circulating fans and ventilation products; Vary Hi-Light H.I.D. 400 watt lamps, and the Vary shade system.

Particular Specifications

The Vary gutter-connected greenhouses, have a gothic arch design, and consist of an energy truss of cast aluminum post tops with bolt through columns, and 6.4 cm (2½ in.) square pre-drilled columns, 3.4 m (11 ft.) in height. Vary greenhouses are available in 6.4 m (21 ft), 7.3 m (24 ft), and 8.4 m (27½ ft.) widths, and will accommodate all the latest greenhouse production equipment. All models come pre-drilled for easy assembly. Vary offers a choice of sizes and coverings to meet individual needs.

Vary's free-standing greenhouses, use a standard extruded aluminum base, incorporating Polylocking channel. The Polylock is designed to make installation of polyethylene easy, by simply snapping it between the inner and outer strips, in any combination of up to 16 mils thick.

The Vary Pro-Fit rolling bench is designed to maximize growing area within the modern greenhouse environment. The benches are of hot-dipped galvanized expanded metal adaptable to the Vary Root Zone bottom heat systems.

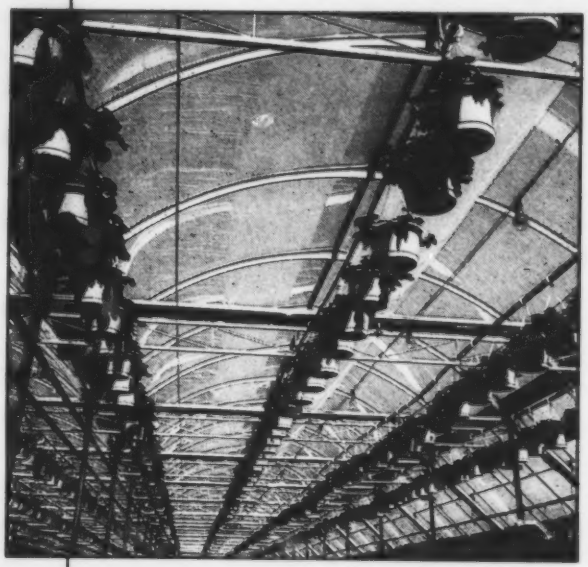
The Root Zone bottom heat system is a micro climate, hot water heating system supplying heat to the root area of plants. While warming the roots, the warm air rises through the soil and also heats the foliage promoting faster and more vigorous growth. The system utilizes a patented synthetic rubber tubing to circulate the hot water. Root Zone Tubing is available in three different styles: regular, having an outside diameter of 0.64 cm (¼ in.) suitable for most bench growing applications, regular Root Zone Tubing with a built-in flange for wooden bench operations where the grower simple staples the flange to the slats, and Root Zone Supertube with an outside diameter of 2.5 cm (1 in.) which can be buried in the soil beneath in-ground crops.

Vary uses Grundfos or Taco pumps to push hot water through the Root Zone system. Vary can supply such auxiliary equipment as boilers, heat exchangers and electronic modulating mix valves. The Company also manufactures circulating fans and motorized shutters to promote air movement in greenhouses.

MANUFACTURER:

Vary Industries,
317 South Service Rd. W.
Gimsby, Ont.,
L3M 4N6
TEL: (416) 945-9691
FAX:(416) 945-2313

THE WESTBROOK GUTTER-CONNECTED GREENHOUSE



The Westbrook gutter-connected greenhouse available in double poly or curve tempered glass

Westbrook Systems manufacture greenhouses in 5.5 m, 6.4 m, 7.3 m, 9.1 m, and 11.0 m (18, 21, 24, 30 and 36 foot) widths, with roof cladding in poly, acrylic, or tempered glass, curved to the arch.

The Company also produces a complete line of shade, heat retention, humidity and blackout curtains, grow carts, rolling and stationary benches (trough, Ebb and Flow, and expanded metal surface), heating, grow lights, ventilation, fogging, irrigation, mono rail systems and more.

Operational Specifications

Westbrook gutter connected greenhouses come in double poly, and the 5.5 m and 6.4 m width models are also available in curve tempered glass.

Westbrook rolling benches are available in expanded metal, covered trough, or ebb and flow types.

Westbrook gothic-style free standing greenhouses are available in 9.1 m (30 ft) widths, as well as custom sizes.

A durable, well constructed ventilation system, that can economically move the volume of CFMs required, is also available.

Particular Specifications

Widths available m (ft) 5.5 (18) 6.4 (21) 7.3 (24)

Arches: a. 1″x3″x16 gauge galvanized steel set at 6′ spacing
b. 1″x3″x14 gauge galvanized steel set at 6′ spacings

Trusses: a. 10″ high 1¼″x1¼″ square tubing with ⅜″ rod webbing
b. 1″x2″x14 gauge galvanized steel

Gutters: 11″ wide x 5½″ deep x 12 gauge galvanized steel, joggled and pre-punched for easy assembly.

Roof Cladding: a. 6 mil three year CIL Durafilm poly
b. 4 mm tempered glass 6′x10′ in size and curved to arch profile

Fan: Blade dia. 24″ to 54″ fitting panel sizes 30″x30″ to 60″x60″

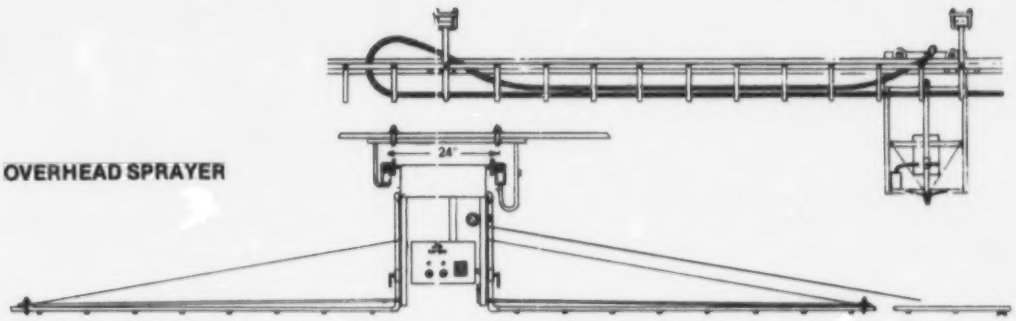
MANUFACTURER:

Westbrook Greenhouse Systems Ltd.,

270 Hunter Road,
P.O. Box 99,
Grimsby, Ont.
L3M 4G1
TEL: (416) 945-4111
FAX: (416) 945-6564
TELEX: 061-5291

ANDPRO SPRAY-RITE NURSERY SPRAYERS

OVERHEAD SPRAYER



The travelling boom greenhouse sprayer suitable for ground level, overhead, bench height or outdoor installations. The sprayer travels the length of the greenhouse, reversing direction automatically at each end, until switched off.

Andpro manufactures nursery sprayers to irrigate, mist, fertilize and apply chemicals. Additional Andpro equipment consist of manual and stationary spray booms, portable injector systems, including agitator and material handling systems, including mono-rail, carts and conveyors.

Particular Specifications

Andpro travelling boom sprayer is available for any clear span greenhouse up to 12.8 m (42 ft.) wide and 91.4 m (300 ft.) long.

The uniform spray patterns of the units, enable fertilizers, and wettable powders to be applied.

Drive	110 V electric motor with reverse
Speed	3, 4, 4.6 or 5.5 m/min (10, 13, 15 or 18 fpm)
Spray Nozzles	Equally spaced along the boom with tip capacities varying from .38 to 5.4 l/min at 28 124 kg/m² (40 psi.) liquid pressure
Optional Features	Boom height adjusts 406 mm (16 in.) at 51 mm (2 in.) increments Preselect capability for watering certain areas Computer capability to connect to main terminal Complete set of misting tips with gaskets, strainers and colour coded caps Supports for H.P.S. lights

MANUFACTURER:

Andpro Ltd.,
RR#4,
Waterford, Ont.
N0E 1Y0
TEL: (519) 443-7466

HARNOIS GREENHOUSE ACCESSORIES

The Harnois Aquaboom designed for all greenhouses and shadehouses, achieving watering uniformity plus accurate fertilization.

The Company are manufacturers of greenhouses, shadehouses, shelters, irrigation equipment, controls, heating equipment, artificial snowmaking equipment, and complete turnkey projects. The Company's technical department will design special structures to meet buyers needs.Harnois manufactures the Nordique, a gutter connected greenhouse, Plastigro tunnels, and the Harnois shadehouse structures; Aquaboom, Benches, and Transportation Racks.

Particular Specifications

Aquaboom
Corrosion free all aluminum casing
Fast adjustment of watering height
Chain driven and rubber wheels
38.1 cm (15 in.) spacing, no-drip nozzles
Adjustable speed, 2.4 m (8 ft) to 9.1 m (30 ft)/min.
Aisle width from 45.7 cm (18 in.) to 61 cm (24 in.)

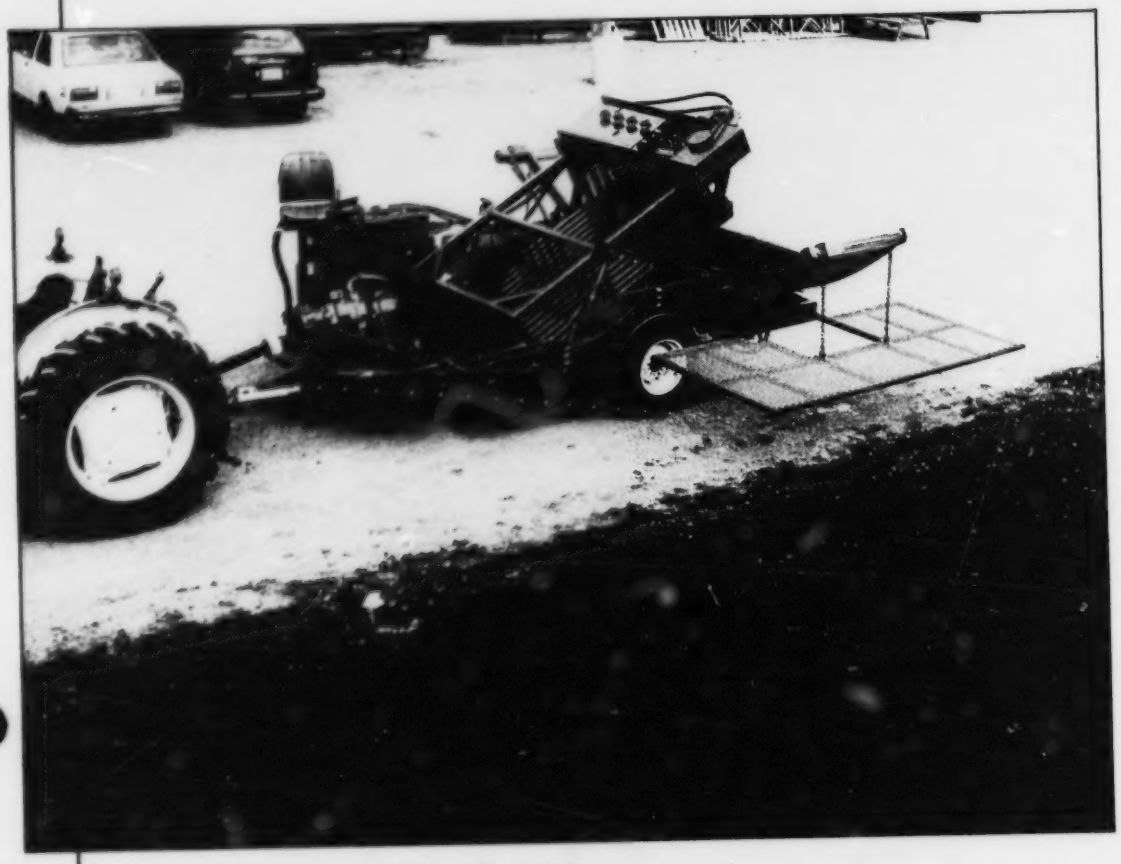
Options
Fertilizer injector
Benches
Trays rolling on benches for higher production (inside the greenhouse)
Under the shadehouse, special tracks receive the rolling trays
Transportation Racks
Unique transportation rack designed specially for reforestation containers permitting a maximum number of plants to be transported in a minimum amount of space. Each shelf is removable, lockable, height adjustable, and has a capacity of 10 containers of plants. The rack can hold up to 8 shelves, and is easy to handle with the help of a fork lift.

MANUFACTURER:

Harnois Industries Inc.

1044 Principle St.
P.O. Box 150
St-Thomas (Joliette), Que.
J0K 3L0
TEL: (514) 756-1041
FAX: (514) 756-8389

NURSERY SEEDLING HARVESTER



The Hovey 8-row seedling lifter with dual side conveyors.

Hovey Industries manufactures the 8-Row seedling lifter with dual side conveyors.

PRICE: Approx. $50,000. to $60,000. F.O.B. Ottawa, Ont., 1988.

Particular Specifications

Height	2.3 m (7.5 ft)
Length	4.8 m (15.7 ft)
Width (without conveyor)	2.3 m (7.5 ft)
Weight	1500 kg (3,307 lb)

Operational Specifications

The nursery seedling harvester lifts seedlings at ground speeds of 5 m/min to 12 m/min. It requires approximately 26.1 kW (35 BHP) at PTO speed of 540 RPM to drive the hydraulic system.

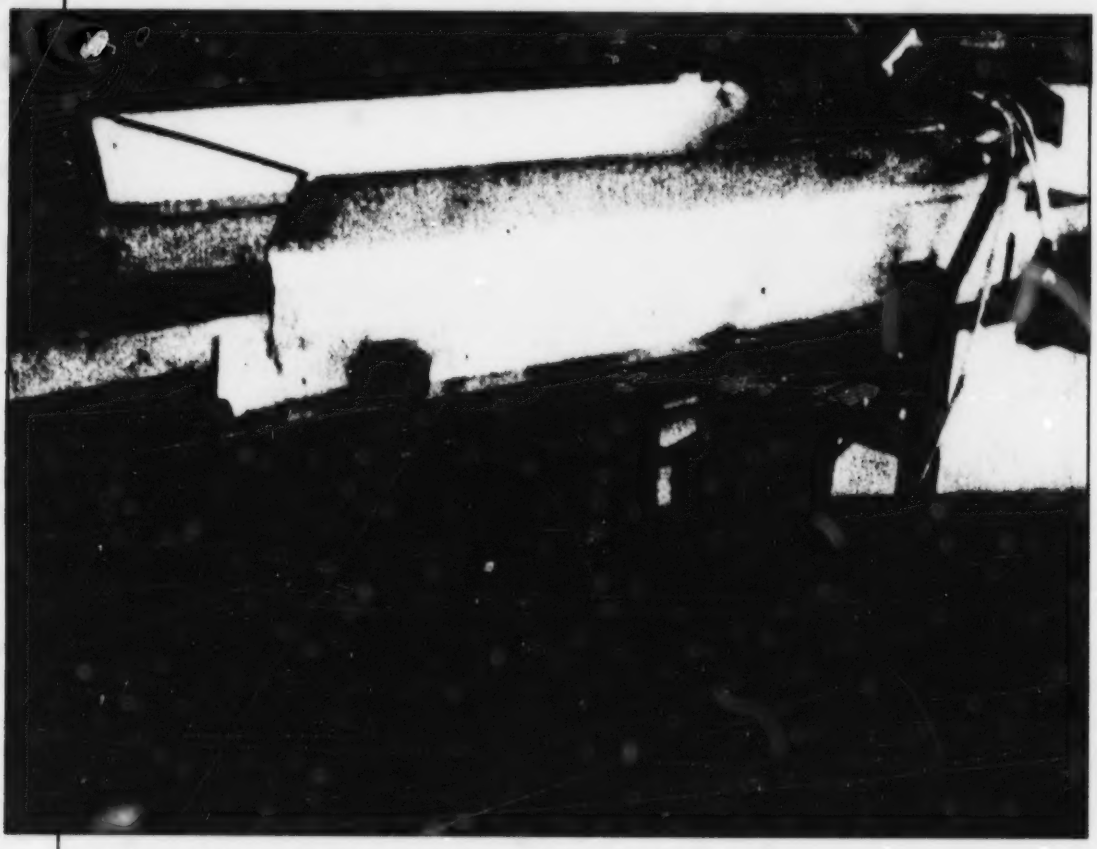
The pulling tractor must have a hydrostatic transmission.

Available in 6, 7, and 8 row configurations.

MANUFACTURER:

Hovey Industries Ltd.,
2378 Holly Lane,
Ottawa, Ontario
K1V 7P1
TEL:(613) 731-1200
FAX: (613) 731-0851
TELEX: 053-4740

SPENCER-LEMAIRE GERMINATION BOXES AND FILLING MACHINES



Petawawa Style Germination Box and the Spencer Lemaire Filling Machine.

Spencer-Lemaire manufacturers Rootrainer seedling germination and container systems, as well as germination boxes and filling machines.

Particular Specifications

The germination boxes are modelled on the Petawawa Forest Institute's specifications
Inside useful size is : 22 x 25 cm (9 x 10 in.)

Prices $ CDN	
Lid: Polycarbonate	2.65 ea.
Base:	4.25
Grille:	1.75
Set:	8.00 ea.

The Spencer-Lemaire filling machine is adaptable to any kind of container system.

Length	2.4 m (8 ft)
Width	0.8 m (2.5 ft)
Height	1.1 m (3.75)
Conveyor	Dayton gearmotor
Cam Drive	Leeson 1/3 hp, heavy duty motor

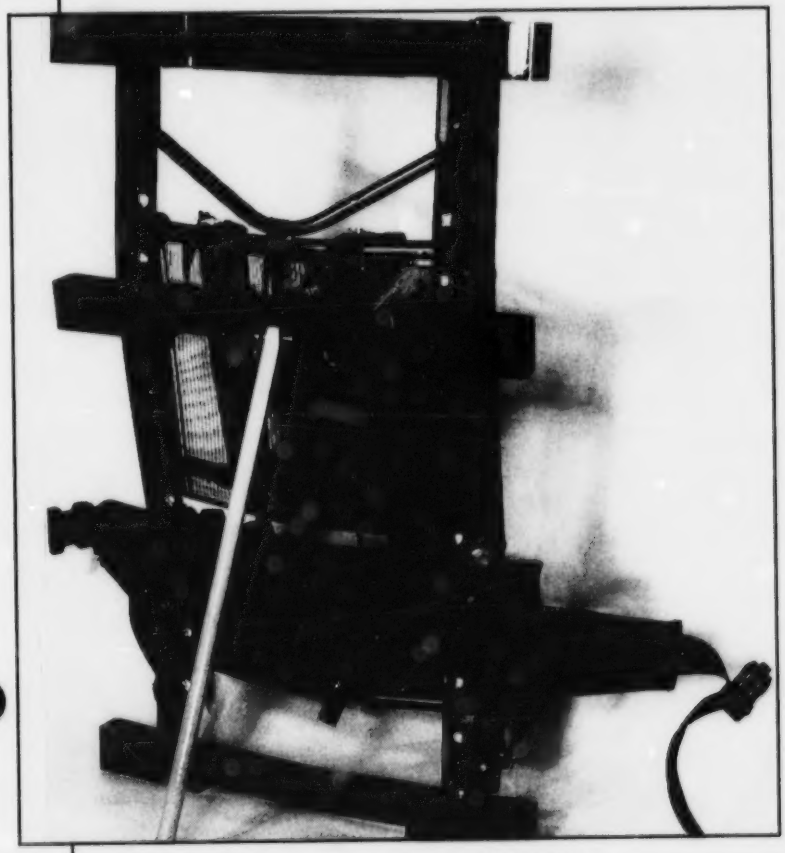
Price, F.O.B., Edmonton (1988) $4,500 CDN
For standard rootrainer sizes, the tray filling machine averages 500 trays per hour.

MANUFACTURER:

Spencer-Lemaire Industries Ltd.

11413 - 120 St.
Edmonton, Alta
T5G 2Y3
TEL:(403) 451-4318
FAX : (403) 452-0920
TELEX : 037-2966

NOVA SYLVA MULTIPOT BACK TRANSPORTER



Nova Sylva Back Transporter carries up to eight Multipot seedling containers.

PRICE: F.O.B. Montreal, Approx. $100.00, immediate delivery, (1988)

Particular Specifications

Height	54 cm (21 in.)
Width	80 cm (31.5 in.)
Weight	4 kg (8.8 lbs)

Operational Specifications

The Nova Sylva back transporter carries up to eight 45 or 67 cavity Multipot containers. Each container slides into a steel holder. A mobile leg maintains the transporter in the upright position while loading and unloading. The heavy duty anodized aluminum frame is S-shaped for comfort.

MANUFACTURER:

Nova Sylva Inc.,

P.O. Box 1624,
1587 Denault St.,
Sherbrooke, Quebec
J1H 5M4
TEL: (819) 821-4617
FAX: (819) 821-4671

FORESTRY TANDEM TRAILER / SEEDLING CARRIER

Nova Sylva seedling carrier

PRICE: F.O.B. Montreal, approx. $1600, 2 weeks delivery. (1988)

Particular Specifications

Height	1.5 m (5 ft.)
Length	2.25 m (48"x88") (Box)
Weight	Approx. 159 kg (350 lb)
Wheels	4 x 20.5 x 8.0-10 4 ply tires

Operational Specifications

The forestry tandem trailer, has a seedling rack capable of transporting 90 Multipot containers, on or off-road. The tandem bogies, help maintain a relatively level load over rough terrain. The seedling box can be replaced with posts for log hauling.

The unit is shipped disassembled.

MANUFACTURER:

Nova Sylva Inc.,

P.O. Box 1624,
1587 Denault St.,
Sherbrooke, Quebec
J1H 5M4
TEL: (819) 821-4617
FAX: (819) 821-4671

A2 FORESTER

The A2 forester is specifically designed for forestry and silviculture, and will mulch stumps and slash into two rows, to prepare the forest sites for replanting. The roto-tilling action puts the nutrients back into the soil, up to 230 mm (9 in.) in depth, thus preventing regrowth for several years.

The A2 Forester is Canadian in concept, design and manufacture. It is specifically designed for forestry and silviculture applications and is different from the Rotoclear Machine, which is manufactured for use in land breaking and agriculture.

The rotor in the Forester model A2, is 3 m (10 ft.) long, instead of the shorter 2.3 m (7.5 ft.) length of the Rotoclear Machine. This machine is also hydrostatically driven, instead of the mechanical drive on the Rotoclear, which permits the user of the A2 better control of the speed of the rotor.

PRICE: Approx. $350,000 F.O.B. Calgary, Alta. (1988)

Operational Specifications

The A2 Forester was originally designed and manufactured for the Canadian Forest Service in order to prepare forest sites for replanting.

The cutting portion of the rotor is the outer 914 mm (3 ft.) on each end, leaving a protective area in the centre. The machine will chew, mulch and bury stumps, roots and underbrush under the soil to a depth of 230 mm (9 in.) or less, leaving the top soil ready for planting. An important feature is that the machine will fragment and mulch stumps measuring up to the width of the rotor, providing they are cut no higher than 127 mm (5 in.) above the ground.

Its many uses are in land clearing, scarification, site preparation and slash disposal.

Particular Specifications

Height	2750 mm	9 ft.
Width	4110 mm	13.5 ft.
Length	9750 mm	32 ft.
Weight	14.73 Imp. Tons	33,000 lb.

Rotor:	
Width, m (ft)	3.05 (10)
Cutting on each end, m (ft)	0.9 (3)
Diam. incl. teeth, cm (in.)	79 (31)
Teeth	44 self sharpening, knock out replacement
Pockets	44 taper wedge
Drum, cm (in.)	50.8 (20)
Depth of cut, cm (in)	0 to 22.8 (0 to 9)
Rotor Speed, rpm	380

Mechanical Specifications

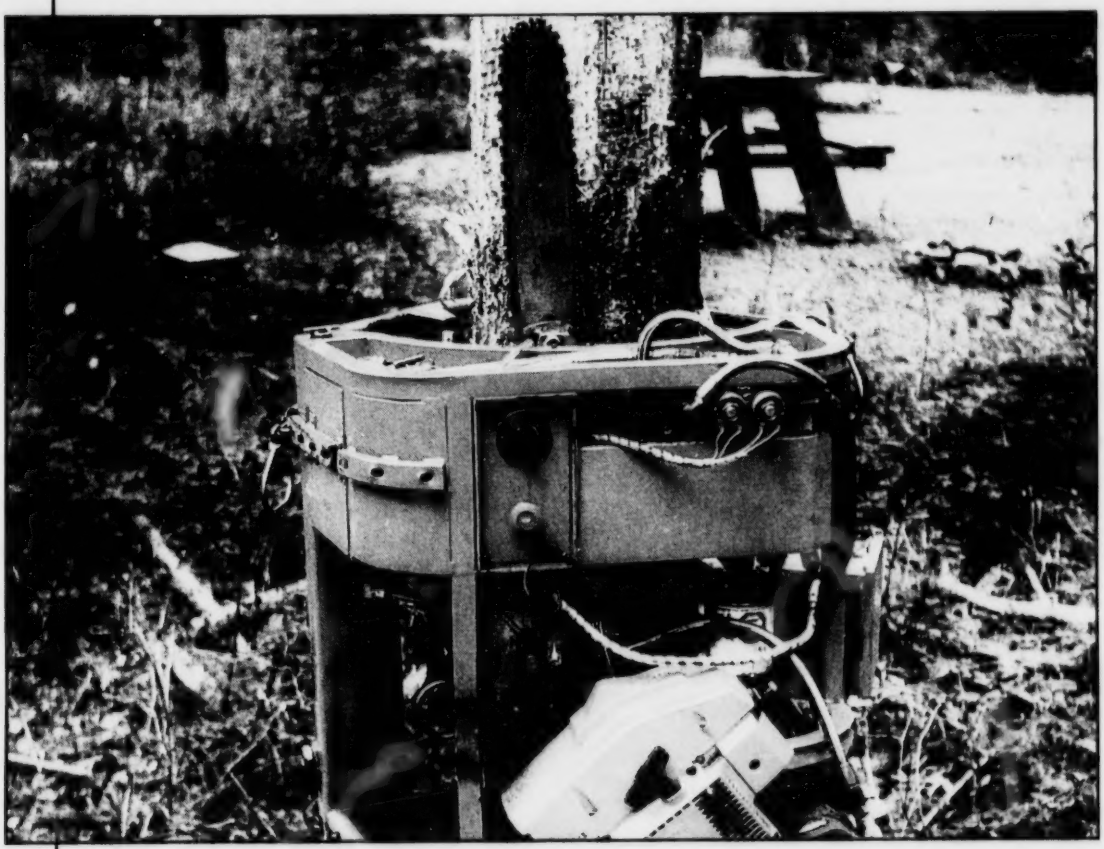
Engine	8V-92T Detroit Diesel, Silver, 358 kW (480 hp) @ 2000 RPM
Hydrostatic Drive System	Hagglund Dennison Pump Series P24P, Model C with Sundstrand SMA Motors
Electrical System	24 volt alternator
Tires	73-4400-32 H16 Logger(185.4x11176-8128 cm)
Fuel tanks, L (Imp. gal)	1113.7 (245)
Hydraulic tanks, L (I. gal)	1000.12 (220)

MANUFACTURER:

Roto International Corporation Inc.,

6 3834 54 Avenue S.E.
Calgary, Alta.
T2C 2K9
TEL:(403) 279-7759
FAX: (403) 236-5214

CLIMBING TREE DELIMBER/DEBARKER



Climbing Tree Saw and Debarker. This machine prunes limbs on the way up the tree, and debarks the bole on the way down.

The Company manufactures small silviculture equipment for pruning trees.

Particular Specifications

In operation, after the tree saw is placed on the tree, it climbs the tree, and removes the branches on the way up. At a predetermined set height, the machine reverses direction, activates the debarker which removes the bark on the way down.

Performance figures and costs from field tests, indicate the cost effectiveness of this approach in controlling infestations of Pine beetles, so that the beetle larvae are either killed mechanically or are subject to lethal temperature variation, starvation or predation. Other possible uses of this machine are as a portable hydraulic power source.

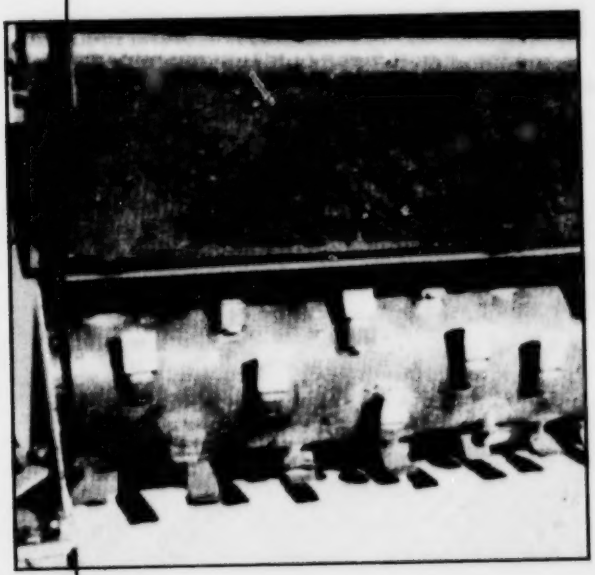
Operating tree size ranges from 18 to 39 cm (7 to 15.5 in.) diameter. The climbing rate is 2.9 m/min. (9.5 fpm.). Branches up to 7.6 cm (3 in.) can be cut. Track drive, using modified roller chain, is mounted on a frame and gimballed horizontally. The power is provided by the Husqvarna 181 power head.

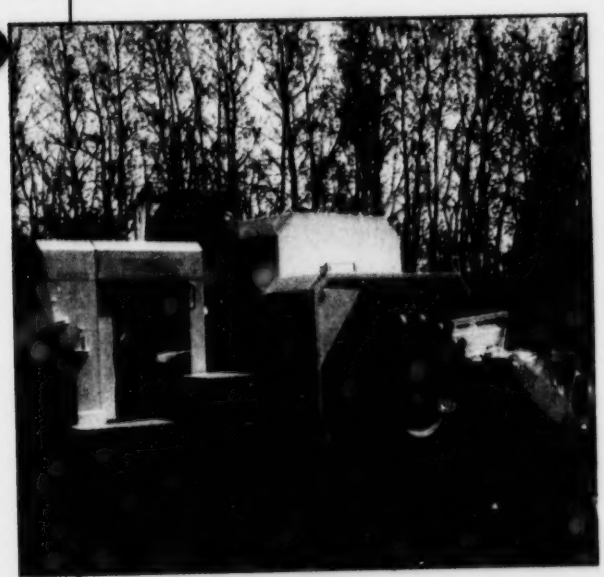
For further technical and operational information, see Technical Note No. TN-81, FERIC, Vancouver, B.C., The Development of a Climbing Tree Delimber/Debarker, D.C. Molson, January, 1985.

MANUFACTURER:

Seymour Engineering Ltd.,
930 Sherwood Ave.,
Coquitlam, B.C.
V3K 1A8
TEL: (604) 521-5409
FAX: (604) 525-5725

ROTOCLEAR MACHINE





The Rotoclear is a 6.7 m (22 ft), 9,980 kg (22,000 lb) roto-tiller specifically designed to mulch tree stumps and slash, and scarify soil for use in landbreaking and agriculture.

The Madge Rotoclear is Canadian in concept, design and manufacture. It can clear, mulch surface growth, under rigorous conditions of climate and terrain. Used in agricultural-forestry, environmental management. It is also available as the A2 Forester, which is specifically designed for forestry and silviculture (see A2 Forester).

PRICE: Approx. $150,000 F.O.B. Calgary, Alta (1988).

Operational Specifications

The Rotoclear can be pulled by a four-wheel drive tractor, track-type tractor or all-terrain vehicle. The pulling vehicle should be equipped with a blade or roll bar, to push down the timber or underbrush. Standing trees up to 1524 mm (5 ft.) diameter can, in this way, be mulched in one pass by the Rotoclear. The Rotoclear Machine has been used throughout Canada, the United States, Mexico, Columbia, Argentina and West Germany for land clearing, reforestation, land reclamation and for mixing soil ingredients for road work, for more than 15 years.

The machine will chew, mulch and bury stumps, roots and underbrush under the soil to a depth of 230 mm (9 in.) or less, leaving the top soil ready for planting. Quite often prior to seeding, the soil is packed or lightly raked, as the rotor fluffs it up to approximately 305 to 356 mm (12 to 14 in.). An important feature is that the machine will fragment and mulch stumps measuring up to the width of the rotor, providing they are cut no higher than 127 mm (5 in.) above the ground.

Physical Specifications

Length	6850 mm (22.5 ft.)
Width	3000 mm (9.7 ft.)
Height	2750 mm (9.0 ft.)
Shipping Weight	9980 kg (22,000 lb.)

Mechanical Specifications

Engine	8V-92T GM Diesel 317 kW (425 HP) @ 2350 RPM
Rotor	
Width	2300 mm (7.5 ft.)
Diameter	790 mm (2.58 ft.)
Options	8V-71 GM Diesel 318 HP @ 2100 RPM 8V-71 GM Diesel 365 HP @ 2350 RPM Special rotors on request

MANUFACTURER:

Roto International Corporation Inc.,

6 3834 54 Avenue S.E.
Calgary, Alta.,
T2C 2K9
TEL:(403) 279-7759
FAX: (403) 236-5214

PERCHERON M2M MECHANICAL DISC TRENCHER

The Percheron I.C.L. M2M mechanical disc trencher

The Percheron disc trencher is available in models M2M directly bolted to the prime mover and model M2M-Qd, quick disconnect coupling type.

Disc trenchers are continuous row scarifiers that attach to the rear of a prime mover. They are adaptations of agricultural discs for forested site applications.

Specifications

Overall length, cm (in.)	198 (78)
Overall height, cm (in.)	305 (120)
Overall width, cm (in.)	137 (54)
Angle, degrees	30
Disc diam. incl. teeth, cm (in.)	99 (39)
No. teeth/disc	10
Disc tooth length, cm (in.)	33 (13)
Disc spacing, m (ft)	1.8 to 2.0 m (5.9-6.6 ft)
Bottom frame to ground clear,cm (in.)	112 (44)

Mechanical Specifications

Prime mover required, kW (hp)	96 (130)

Operational Specifications

The Percheron disc trencher can be applied under severe conditions such as ground covered with stumps, rocks, debris, thick duff and very hilly areas.

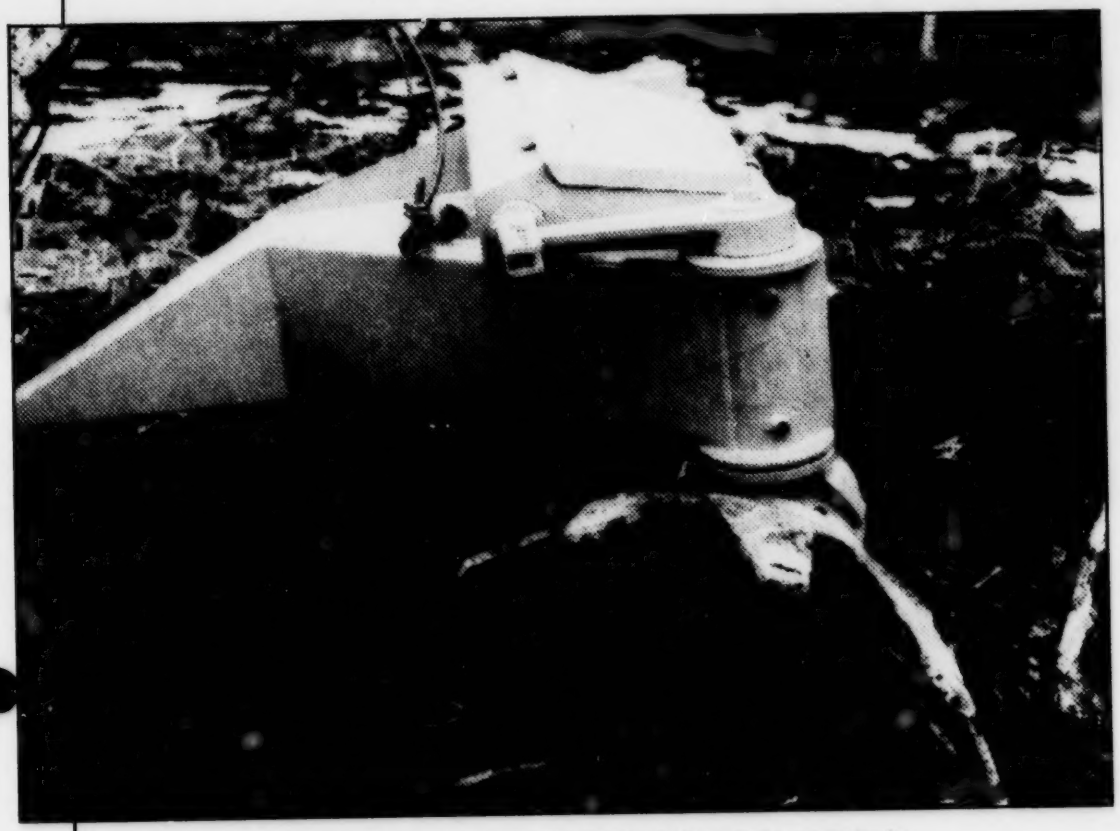
The disc trencher will create simultaneously two continuous furrows. Five different adjustments can be made to narrow or control the depth penetration of the two discs in order to obtain the proper micro-site exposure for tree planting, or direct seeding.

The standard type, model M2M, is directly bolted to the prime mover and can be lifted off the ground, by the transporter winch, for forest manoeuvering, and also for long distance transportation. The M2M-Qd model, with quick disconnect coupling, enables the prime mover operator to readily disconnect or fully re-engage the disc trencher. This is particularly useful where severe conditions are likely to be encountered, such as swampy areas, steep slopes, and forest sites where large quantities of debris, boulders, stumps are likely to be encountered.

MANUFACTURER:

Industries Couture Limitee
2007 boul. Talbot
C.P. 460
Chicoutimi, Que.,
G7H 5C8
TEL: (418) 549-2850
FAX: (418) 549-1076
TELEX: 051-36122

CANADIAN FORESTRY EQUIPMENT DISC TRENCHER



The CFE Disc Trencher, a continuous row scarifier, that attaches to the rear of a crawler tractor.

C.F.E. manufactures, sells and leases a complete line of silvicultural site preparation equipment. In addition to scarifiers, disc trenchers, rakes and plows, the Company handles brush cutters, sprayers, herbicide attachments for disc trenchers, silvicultural prime movers and carriers, and fire pump kits.

Particular Specifications

Length, m (ft)	2.3 (7.5)
Width, m (ft)	2.4 (8.0)
Height, m (ft)	1.2 (3.9)
Weight, kg (lb.)	3175 (7000)

Mechanical Specifications

Two freely rotating, non-powered, spring loaded discs. Each disc with 10 rounded teeth.

The disc angle can be adjusted to alter the width and depth of the furrow.

Soil penetration is increased by adding weight to steel box frame.

Operational Specifications

The disc trencher produces parallel furrows generally 1.8 m (5.9 ft) to 2.4 m (7.9 ft) apart, depending on the model. Furrows average 10-15 cm (3.9-5.9 in.) in depth. Generally trees can be subsequently planted at the bottom, or sides of the furrow.

Disc trenchers work best on moderately wet to moderately dry sites, with silt loam and coarser soil textures, and light to medium slash. Disc trenchers are good for reducing grass competition, reducing duff and improving soil temperature.

MANUFACTURER:

Canadian Forestry Equipment Ltd.

17212 - 106 Ave., Edmonton, Alta., T5S 1H9
TEL: (403) 484-6687
TELEX: 037-3302

LE CRABE FOREST HARROW

Le Crabe Forestry Harrow used to maintain hydro lines instead of chemical approaches

Les Entreprises Protege-Sol manufactures the Crabe forestry harrow, as well as the Crabe Forwarder. The Crabe Harrow is available in two models: 2.43m (8 ft.) and 3.65m (12ft.) sizes.

PRICE: Approx. (1988) F.O.B. Montreal, Que. $45,000.

Particular Specifications

Height,m(ft)	1.8 (6)
Overall Length, m (ft)	3.7 (12)
Maximum Width, m (ft)	2.43 (8) or 3.65 (12)
Weight, kg (lb)	3,000 (6,614)

Operational Specifications

The forest harrow is available with 61.0 cm (24 in.), 76.2 cm (30 in.) or 91.4 cm (36 in.) diameter discs attached to the frame, with each disc independently mounted so it can ride over obstacles as found on the forest terrain.

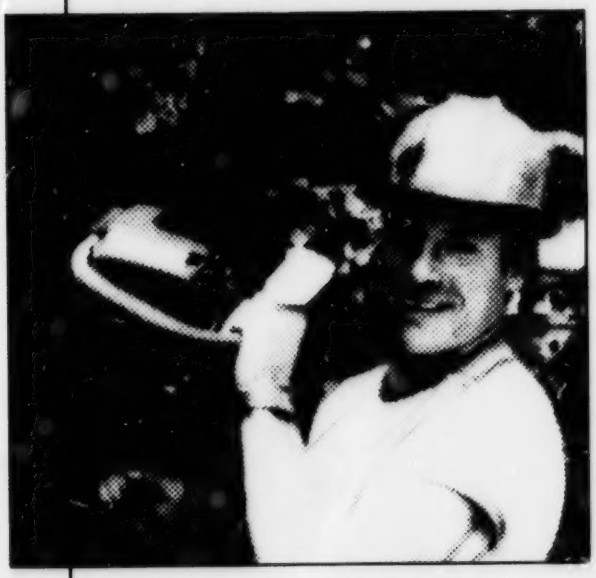
The harrow prepares, revitalizes, and scarifies land in preparation for tree planting, or for just putting it back as agricultural land. It has also been utilized very successfully to maintain hydro lines, replacing the more often applied chemical methods. In tropical climates, it is used in sugarcane applications.

MANUFACTURER:

Les Entreprises Protege-Sol Inc.

621 Joncas
Laval, Que.
H7X 2R2
TEL: (514) 386-8461

HAWK POWER SCALPER



The Hawk Power Scalper chain saw attachment for spot scarification, fire guards and weed control. It consists of four double torsion springs mounted on a specially designed hub which rotates at 5000 r.p.m.

A chain saw attachment for spot scarification, fire guards, and weed control using a power scalper.

Particular Specifications

The Hawk Power Scalper is especially useful in small remote areas, inaccessible areas, wet blocks, steep grades, gullies, heavily stumped blocks, where site preparation of timber stands for tree plantations is required. The operator has direct control in making a plantable microsite at optimum depth and location. The powerful, light weight scalper, makes hand fire guards an easy job, with savings in fire control costs.

This is an alternate method to the traditional use of herbicides in weed and brush control.

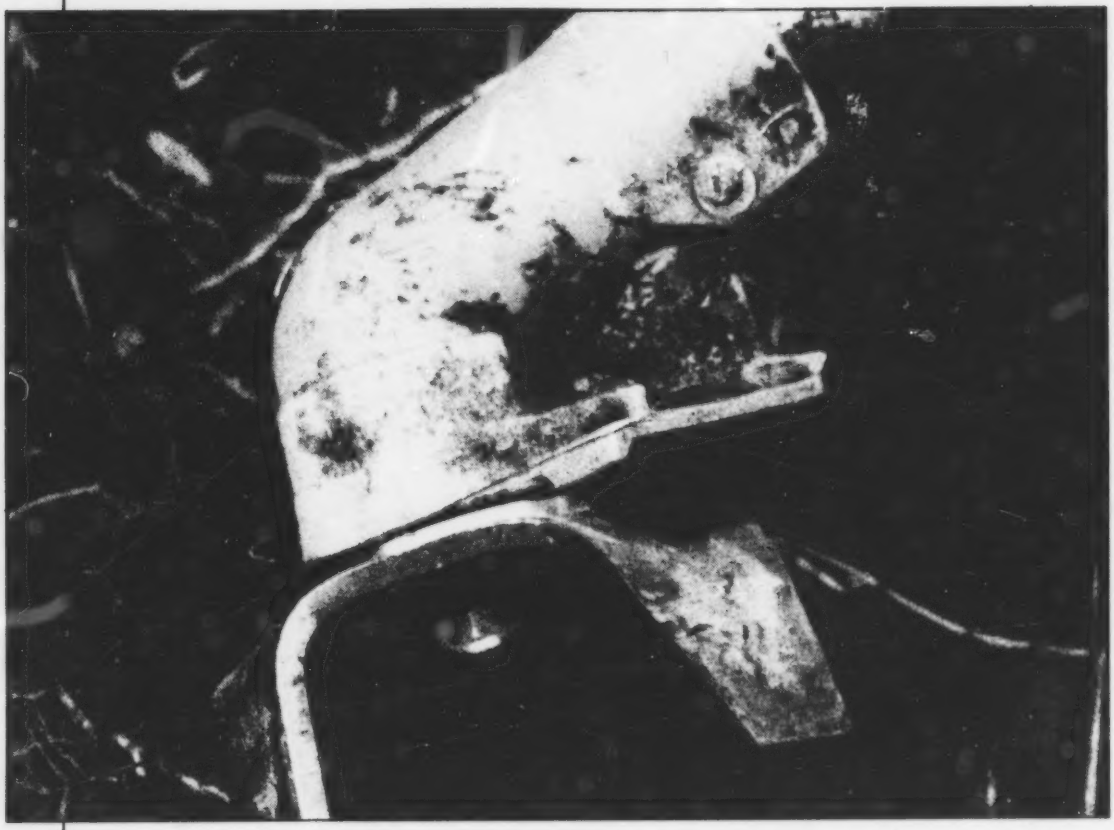
Detailed information is available in FERIC, Montreal, Que., Field Note: Silviculture No. 5.

MANUFACTURER:

Hawk Forest Enterprises Ltd.,

2282 South Nicholson Street
Prince George, B.C.
V2N 1V8
TEL: (604) 563-5765

LA TAUPE CLEARING SAW SCARIFICATION ATTACHMENT



The Taupe scarification attachment for brush saws, with multiple applications on both farm and forest. In forestry it is most often used to prepare microsites before planting

The Company manufactures the Taupe site preparation attachment, adaptable to all professional type clearing saws.

PRICE: Approx. $26.00 (1988) F.O.B. St-Fidele, Que., (1988).

Particular Specifications

Diameter	13 cm (5 in.)
Height	6 cm (2.3 in.)
Weight	750 g (1.6 lb.)

The Taupe is a trident, mounted on a metallic disc.

Operational Specifications

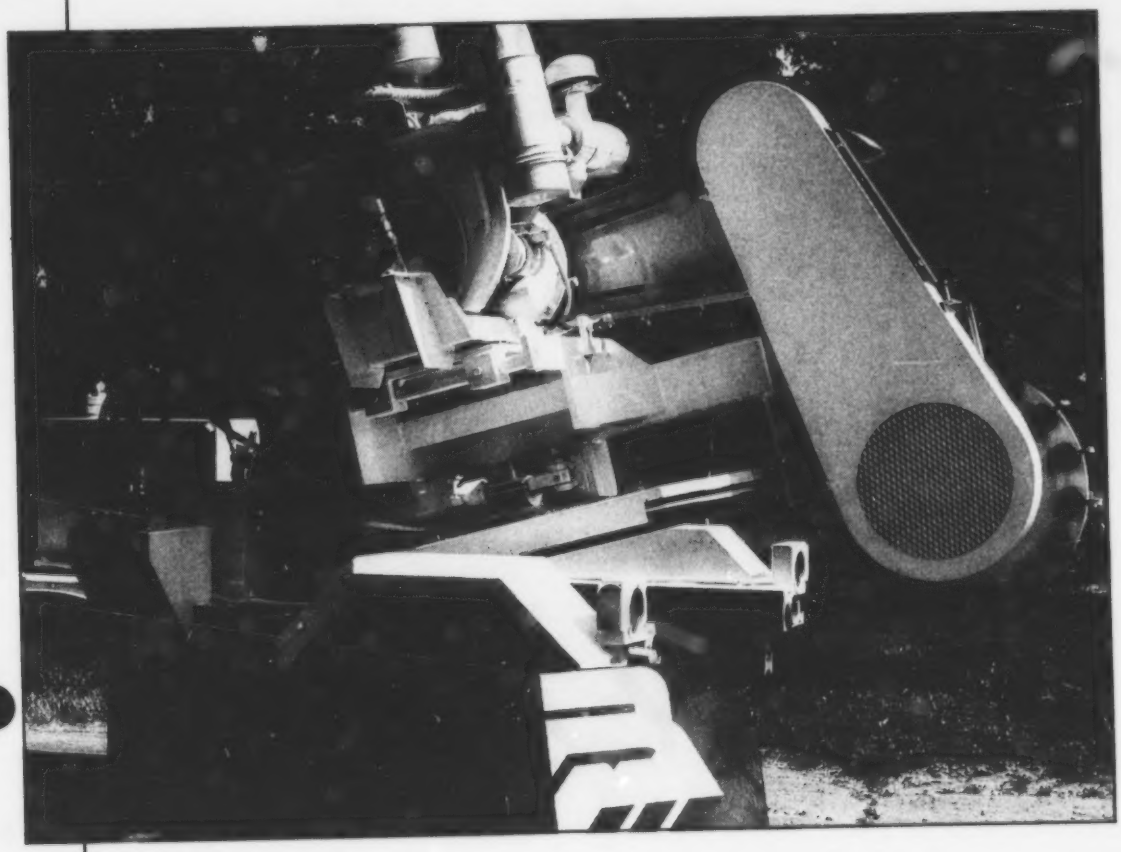
The Taupe (mole) is used as a semi-motorized spot scarifier. It is especially useful on steep slopes, wet areas, unstable soils or rocky soils where machine scarifiers cannot go. The Taupe is used for treatment of small areas, at a reasonable cost.

MANUFACTURER:

Innovations Forestieres 3 R Inc.,

401 Cap St-Fidele, St-Fidele,
Quebec G0T 1T0
TEL: (418) 434-3435

R.M.L. STUMP CHIPPER



R.M.L. mobile stump chipper.

Particular Specifications

Length	4115 mm (162 in.)
Width	1803 mm (71 in.)
Height	2032 mm (80 in.)
Weight	1710 mm (3700 lb.)

Mechanical Specifications

Engine	Wisconson V465D, 65 HP @ 2500 RPM max.
Fuel Tank	94.6 litres (25 gallons)
Hydraulic System Tank	15.1 litres (4 gallons)
Chipper Disc	635 mm (25 in.) diameter x 22 mm (7/8 in.) thick 32 carbide teeth

Operational Specifications

The integral mounted trailer meets Ontario and Quebec highway standards, and includes running lights, electronic brakes, telescopic trailer shaft, 8x14.5x12 ply tires, as well as a ball and socket trailer hitch.

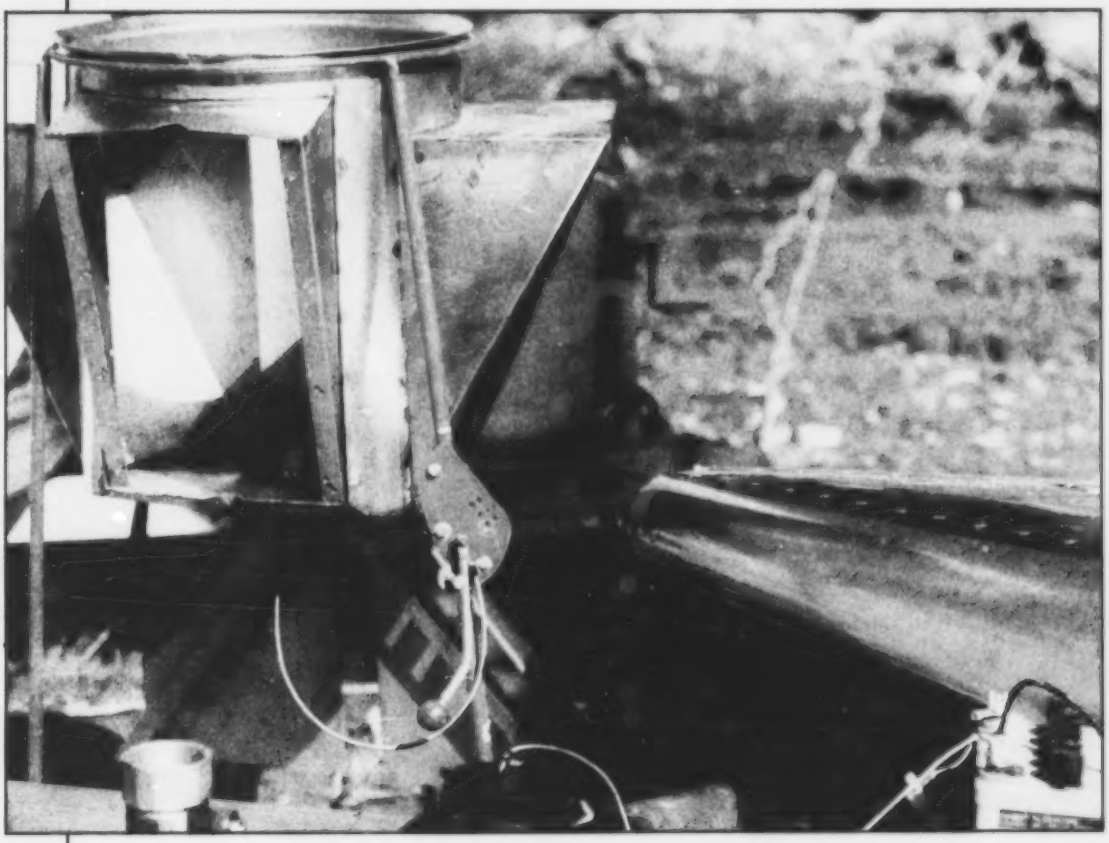
Rodrique Metal specializes in carbide tipped saws, cutter heads and specialty knives, as well as chippers and hammermills.

MANUFACTURER:

Rodrigue Metal Ltée.

256 rue Jacques-Cartier,
St-Romuald, Quebec
G6W 3A9
TEL: (418) 839-0671
FAX: (418) 839-4132
TELEX: 05-13786

AGRIC AERIAL SEEDER



The Agric Air's Aerial Seeder used to broadcast softwood seeds, mounted on the Piper Pawnee.

Designed for aerial, softwood seed dispersion by Piper Pawnee, but is adaptable to other small aircraft.

The Company are specialists in air spraying of forest and field crops, and also in the design and construction of aerial attachments for planes to meet particular needs.

Specifications

Dispersion rate: No. seeds/ha(ac) 24,700 to 37,050 (12,000 to 15,000)
(Jack Pine)
Dispersion controls from the pilot's cockpit

MANUFACTURER:

AGRIC AIR Inc.
King City, Ontario,
LOG 1KO
TEL: (416) 832-1519
TELEX: 05-830507

FANDRICH AERIAL CONE RAKE

The Fandrick Aerial Cone Rake collecting Pacific silver fir cones.

Three variations of the cone harvester rake are manufactured by Fandrich: one cuts branches and cones, one strips branches clean, and a third rakes cones out of the trees.

Particular Specifications

A cone shaped device to be suspended under a helicopter on a 18.3 m (60 ft.) tether. Open at the bottom it slips over about 5m (16 ft.) of crown. As the collector is raised, the cones or branches are removed and subsequently dropped into a surrounding wire mesh basket. The helicopter deposits a collection from several trees at a dumping site, where the wire basket and the fiberglass cutting cone are separated, allowing the branches to fall free.

Typical collecting rates using the Fandrich Aerial Cone Rake:

Species	Collecting Rate hL/hr (bu/hr)	
	Average	Highest*
Grand Fir	17.8 (50)	33.0 (94)
Pacific Silver Fir	17.8 (50)	22.2 (63)
White Fir	16.0 (45)	23.6 (67)
Redwood	9.2 (26)	13.0 (37)
Douglas-Fir	7.0 (20)	15.5 (44)
White Spruce	5.6 (16)	7.7 (22)
Lodgepole Pine	4.6 (13)	6.0 (17)
Mountain Hemlock	4.3 (12)	5.1 (15)
Western Hemlock	3.0 (9)	3.5 (10)
Western Red cedar	3.0 (9)	7.7 (20)

*Conditions for high collecting rates: heavy cone crop near top of crown, good crop on most trees in stand, heliport close by, with a good external-load pilot.

hL = 1 hectolitre

Operational Specifications

Helicopters with aerial cone rakes, quickly collect large volumes of cones. The best areas and superior trees are selected from the air, and the harvesting is subsequently undertaken. The rake usually leaves the tops intact, so that they continue to grow and produce more cones.

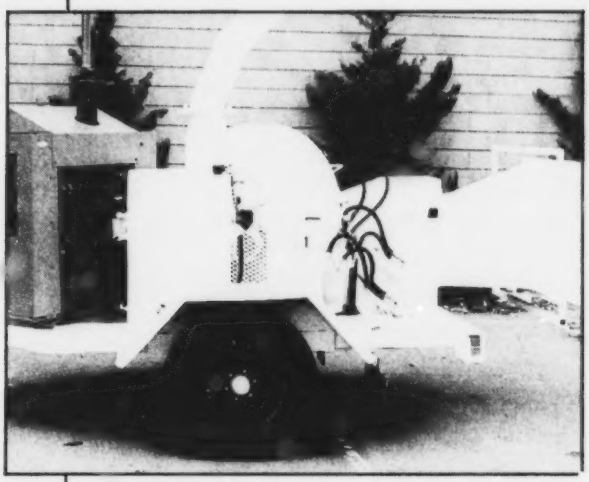
To be cost-effective, aerial harvesting requires project planning, and constant cone monitoring.

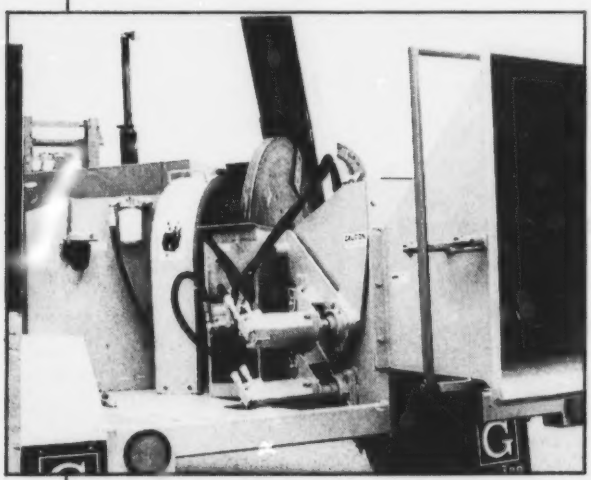
MANUFACTURER:

Fandrich Cone Harvesters Ltd.,

2461 Sunnyside Place,
Abbotsford, B.C.
V2T 4C4
TEL: (604) 859-0666

GRIZZLY WHOLE TREE CHIPPER





1. Portable whole tree chipper, diesel powered, with hydraulic infeed and safety control bar around the infeed chute, 30 cm (12") dia. capacity.
2. Micro switch will not permit engine start up until the shroud covering the chipper disc is securely in place.

The Grizzly model 12.00 whole tree chipper; also available is a special narrow gauge model.
PRICE: Approximately $27,000, depending on engine and other options, F.O.B. Kelowna. Availability 60/90 days, (1988)

Particular Specifications

Height cm (in.)	269.24 (106)
Overall Length cm (in.)	375.92 (148)
Maximum Width cm (in.)	182.88 (72)
Ground Clearance cm (in.)	34.29 (13.5)
Tongue Weight kg (lb.)	113.40 (250)
Total Weight kg (lb.)	2671.70 (5890)

Mechanical Specifications

Engine	60/75 diesel c/w clutch
Starter	Electric start with alternator
Air Cleaner	Donaldson plus Turbo II air precleaner
Power Train	Belts
Chipper Disc	96.52 cm (38 in) X 3.81 cm (1½ in)
Infeed	Two hydraulically driven feed wheels with safety control bar

Operational Specifications

The Grizzly model 12.00 tree chipper can chip brush or wood up to 30.5 cm in diameter (12 in.). It produces a 1.9 cm (3/4 in) chip which can be rotationally directed 290 deg. The vertical direction of the chips is controlled by a deflector on the end of the discharge chute. An adjustable anvil sets the knife clearance. the control bar around the infeed chute provides the operators with infeed speed control. There is a neutral (stop) position and by pushing the control bar totally forward, the infeed rollers will reverse.

MANUFACTURER:

Gemaco Sales Ltd. (Mfg. Div.),

991 Ellis Street,
Kelowna, B.C.
V1Y 1Z3
TEL: (604) 762-3939
FAX: (604) 762-5755

R.M.L. BRUSH CHIPPER

R.M.L. brush chipper, mounted on three-point tractor hitch with P.T.O.

R.M.L. Brush Chipper is available in P.T.O. models for hook-up to agricultural tractors; also available in models RM 12x12 and RM 12x16, with chippers mounted on single axle trailers with their own power source, and chippers mounted on truck platforms; and available in 122 cm (48 in.) diameter chippers for sawmills, plane factories, furniture manufacturing and any other mill with wood refuse.

Particular and Mechanical Specifications

R.M.L. 12x12, 12x16 Brush Chippers

Cylinder	High strength C-1040 30.5 cm (12 in.) diam.
Shaft	C-1040, 8.3 cm (3¼ in.) diam. 4 knives, high speed, steel
Bearings	Spherical roller bearings
Body	Welded steel 16 mm (⅝ in.) thick. Flywheel 533 mm (21 in.) diameter on shaft
Capacity	Hardwood 11.4 cm (4½ in.) diam.
Chipper Opening	9½x11½ in. (model RM 12x12) 9½x15½ in. (model RM 12x16)

R.M.L. 122cm(48 in.) Diameter Chippers

Dimensions	From 12.7x12.7 cm (5x5 ft.) to 20.3x20.3 cm (8x8 ft.) Choice of 3 or 6 knives Horizontal or 45 degree sloped inlet

Average Production 145 m^3 (40 cords) per hour

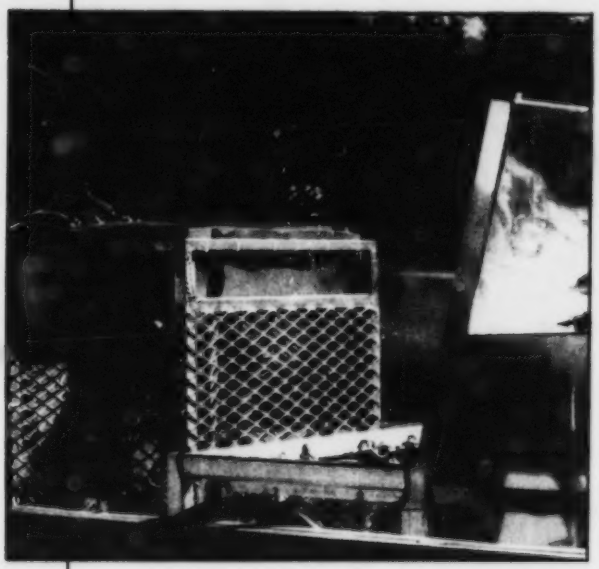
Operational Specifications

These chippers are part of a "Fast Chips" system, which includes the chipper, sifter, cyclone, sawdust exhauster, shavings exhauster and electrical control board.

MANUFACTURER:

Rodrigue Metal Ltée.,
256 rue Jacques-Cartier, St-Romuald, Quebec G6W 3A9
TEL:(418) 839-0671
FAX: (418) 839-4132
TELEX: 05-13786

LA TERRATORCHE DEBRIS BURNER



Flame thrower, La Terratorche, used to get rid of logging debris, clean the sides of roads, and in scarification applications.

The Terratorch is a flame thrower type of ground ignition device using a gel-gas mixture, mounted on a pick-up truck. Developed by SPIM (Service de la protection çontre les insects et les maladies) of Ministére de l'Énergie et des Ressources (MER) from a concept by the Boise Interagency Fire Centre (BIFC) of Idaho.

Particular Specifications

Capacity, mixing tank with agitator, L (I. gal) 500 (110)
Loads gasoline directly from 205L (45.1 gal) drums into reservoir
Preparation of mix, utilizing 4 L (1.8 kg) of Surefire coagulant gel
Optimal mixing temperature, 21 deg C (70 deg F)
Propane ignition system with regulator and tank
Motor, Honda 6 kW (8 hp)
Transport vehicle, 4X4 truck, or off-road transporter with 3 - 9 kg (20 lb) fire extinguishers
Helmet equipped communication system for operators, and with office at all times
Operators Safety Equipment: Nomex overalls, mask, glasses, and gloves

Operational Specifications

The operation of the equipment requires 3 persons: the driver, the operator of the flame thrower and a security person.

The flame nozzle can shoot up to 40m (408 ft). The distance is a function of the revolution of the motor.

Only certified and trained personnel are permitted to use the apparatus. All loading of the vehicle normally occurs within 50 m of a water source. Emphasis must be on safety at all times.

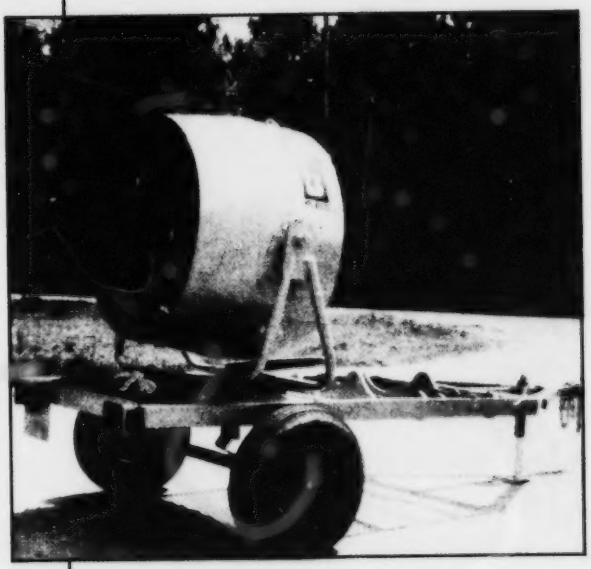
Varsol is recommended for cleaning the reservoir after each use.

MANUFACTURER:

Ministere De L'Energie et Des Resources

S.P.I.M.
1530, boul. de l'Entente
Quebec, Que.
G1S 4S7
TEL: (418) 643-4670
Fax: (418) 643-2368
Telex: 051-31556

BALDERSON-FLECO BRUSH BURNER



Heavy duty brush burner(trailer is optional)

The Balderson-Fleco brush burner is available in standard and heavy duty models, BHD5284 and BBBP5285.

Operational Specifications

Used to induce a draft when burning slash. A spray of fuel oil can be added to ensure a rapid start of the burn.

The brush burner has a valve to control fuel supply for safer burning, a nozzle holding rod that can be engaged at the best spot, and a propeller that feeds air into the brush pile.

The heavy duty trailer mounted model can be rotated 360 deg. and tilted 30 deg. for accurate positioning.

Specifications

Model	BHD	BBB
Engine	Wisconsin	Briggs & Stratton
Power. kW (hp)	10.4 (14)	2.2 (3)
Propeller, mm (in.)	1067 (42)	762 (30)
Fan Rating, m^3/m (ft^3/m)	2265 (80,000)	650 (23,000) Fuel
Pump Capacity, Lph (gph)	228 (60)	114 (30)
Weight, kg (lb)	340 (750)	95 (210)

Optional: Trailer, 3886x84 mm (153x84 in.)

MANUFACTURER:

Balderson Canada Ltd
6400 30th Street,
Edmonton, Alta.,
T6P 1J6
TEL: (403) 469-9185
FAX: (403) 469-9256

POCKET CYCLONE

Weldco Pocket Cyclone aids in the burning of stumps and slash.

Weldco-Beales pocket cyclone is available in the standard Model PC-1A brush burner. Also available as Model PC-1C which sprays diesel fuel to ensure rapid starts.

Particular Specifications

Weight: kg (lb)	24 (52)
Height: cm (in.)	86 (34)
Width: cm (in.)	69 (27)
Length: cm (in.)	64 (25)

Mechanical Specifications

Engine: kW (hp)	2.2 (3), 4-cycle Briggs & Stratton
Propellor: cm (in.)	61 (24) diameter, 2-blade
Air Capacity:	18,000 CFM at full throttle, 6000 idle
Air Velocity: kph (mph)	39 (24) with full throttle, 13 (8) mph idle

Operational Specifications

The cyclone speeds up combustion of brush, stumps, slash, refuse, etc. It controls smoke where fires have been set near highways or populated areas. It exhausts fumes from buildings under construction, and aids almost any kind of drying operation.

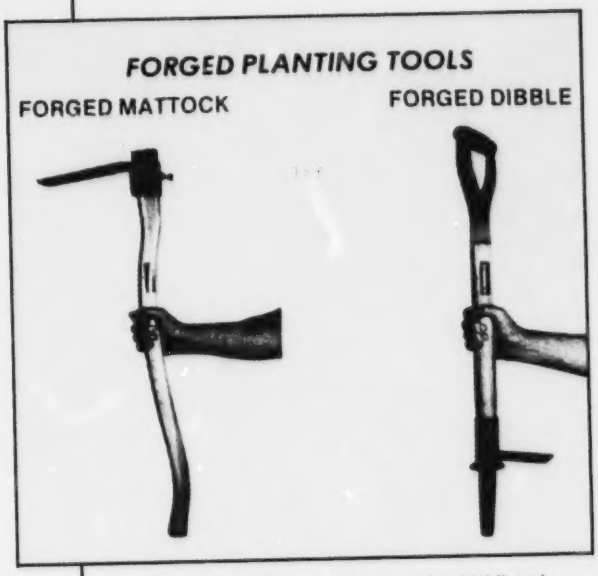
The Model PC-1C Pocket Cyclone incorporates a belt driven pump, plus filter and nozzle for spraying diesel fuel to assist burning.

MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts St.
Burnaby, B.C.,
V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-55103

FORGED PLANTING TOOLS,DIBBLE AND MATTOCK



A. & M. Steelcraft forged planting dibble (right),and forged mattock (left).

Mattocks and hoes are versatile and inexpensive tools used for manual site preparation or improvement before planting.

Both the dibble and mattock are available with or without handle. Dibble in Styro # 2, # 4 and # 8, in mudpack # 1 and # 2. Mattock with or without bolt.

A and M Steelcraft also manufactures picaroons (with or without hammerheads) from a weight of 255 to 595 g (9 to 21 oz.) with handles ranging from 406 to 914 mm (16 to 36 in.). As well, the Company manufactures bull hooks (straight, swivel and cross-eye), shackles (bull hook and butt rigging).

PRICE: 1988 base, plus Federal and Provincial taxes

	With Handle	Without Handle
Styro No. 2	$36.00	$26.00
Styro No. 4	$40.00	$28.00
Styro No. 8	$42.00	$30.00
Mudpack No. 1-0	$32.00	$24.00
Mudpack No. 2-0	$34.00	$25.00

Wide Screefer Bars $2.00 extra
Mattock c/w bolt $26.00 without handle (without bolt $25.00) Mattock handles $12.00

Particular Specifications

Dibble
Alloy steel point
711 mm (28 in.) Dee type, or 1219 mm (48 in.) straight handles
Optional wide screefer bars
Dibbles are used to plant multipot and styroplug container seedlings. The size of the dibble tip closely matches the size of the container.

Mattock
Alloy steel blade
Adze handles for planting mattocks
Mattocks and hoes are available in different shapes and sizes with the smaller and narrower used for planting container stock, while the larger wider heads are used mainly in bareroot planting.

All A.& M. forged picaroons, and planting tools, are heat treated.

Picaroons

Weight, g (oz)	255 g to 595 g
Handle, cm (in.)	40.6 (16) to 91.4 (36)

Other

Bull hooks	2.9 cm (1⅛) to 6.4 cm (2½ in.)
Swivel eye	2.9 cm(1⅛) to 6.4 cm(2½ in.)
Cross eye	2.9 cm (1⅛) to 6.4 cm (2½ in.)
Totem	2.9 cm (1⅛) to 6.4 cm (2½ in.)
Bull hook and Line shackles	1.9 cm (¾) to 3.8 cm (1½ in.)
Butt Rigging	1.6 cm (⅝) to 3.8 cm (1½ in.)

Operational Specifications

The choice of planting tool is usually based on type and size of planting stock, site conditions, preferences, planting method, and local planting considerations, such as regulations.

MANUFACTURER:

A. & M. Steelcraft Ltd.,
8250 124th St.,
Surrey, B.C.,
V3W 3X9
TEL: (604) 594-0615

CARROT EXTRACTOR DIBBLE (HOLE PIPE)

The Carrot Extractor creates a compaction free cavity, the exact size for the container seedling. A shock absorber reduces planter fatigue and injuries. Interchangeable heads are available in varied sizes.

Carrot extractor is the term used for dibble hole pipes, which are manufactured by Nova Sylva. They are used to plant multipot and styroplug container seedlings with the size of the dibble tip closely matching that of the container.

PRICE: F.O.B. Montreal, Approx. $30.00, immediate delivery, (1988)

Particular Specifications

Length	1 m (39 in.)
Weight	2 kg (4.4 lb.)
Head	Heat treated carbon steel cutting edge

Operational Specifications

An earth plug is removed when the extractor penetrates the soil, thus creating a compaction-free cavity. Higher production levels are achieved, because the tool penetrates the soil more easily than conventional dibbles.

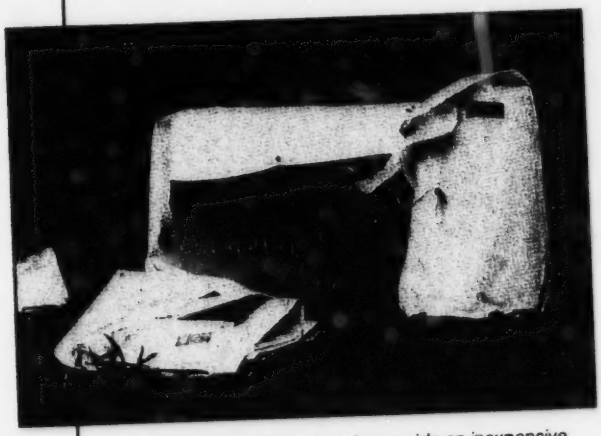
The hollow tip of the carrot extractor allows the soil in the cavity to be removed rather than displaced as in conventional dibbles. However, the hole may clog under some conditions. This problem has been reduced by the N.S. Carrot Dibble by use of thin walls, and an even tapper on the inside and outside surfaces of the tip.

MANUFACTURER:

Nova Sylva Inc.,

P.O. Box 1624,
1587 Denault St.,
Sherbrooke, Quebec
J1H 5M4
TEL: (819) 821-4617
FAX: (819) 821-4671

PLANTING BAGS AND TARPS



Silvicool and Econocool sacks provide an inexpensive method of controlling temperature and moisture levels during the stock handling process. They keep seedlings moist until the time of planting, using space blanket technology to reflect the suns radiant heat while the draw string top reduces evaporation.

Forestworld is a supplier of products required by the silviculture industry. They manufacture Econocool and Silvicool type tarps from woven polyethylene material bonded to a metallized polyester; Silvicool and Econocool sacks; SYE and Econo planting bags.

Specifications

Two weights of Econocool material are available:
Standard, light-weight 8x8 weave
Medium-weight 14x14 weave

Silvicool consists of a white vinyl side out, to block the sun's radiant heat, while the bonded metalized Mylar layer, conducts internal heat through to the outer vinyl layer and the outside air.

Tarps are available in four standard sizes: 1.5 m (5 ft) x 2.1 m (6.75 ft), 1.9 m (6ft) x 2.7 m (9 ft), 3 m (10 ft) x 4.1 m (13.5 ft) and 4.6 m (15 ft) x 5.5 m (18 ft) or in custom sizes.

SYE planting bags are available in three pouch, 33 cm (13 in.) depth and two or three pouch 38.1 cm (15 in.) depth. The bags feature fully padded shoulder straps and hip belts with one inch laminated foam padding and quick release buckles on the main belt. All critical stress areas are reinforced with extra stitching and feature double bottoms and double side walls.

The Econo planting bags are constructed from a lighter material and generally recommended for the less aggressive or non-professional planters. They are available in three pouch 28 cm (11 in.) depth, medium only.

MANUFACTURER:

Forestworld Supplies Ltd.,
304 East Ave.,
Vancouver, B.C.,
V5T 1A9
TEL: (604) 875-1444
FAX: (604) 875-9233
TELEX: 37-29218

TREE PLANTING BAGS

NCI Vest with back pouch, outside and inside pockets, velco flaps, zippered air photo pocket.

Neville Crosby is a forestry supplier, and manufacturer of Bare Root Bags, Individual Plug Pouches, Three Pouch Plug Bags, Web Duck Belts, Survey Vests and Hip Chains. A complete catalogue of forest, mining tools and supplies is available upon request.

PRICE: Tree Planting Bags $75.00, Bare Root Bags $19.95, Individual Plug Pouch $7.50, Three Pouch Plug Bag $22.50, Hip Chain-M25 $115.00, NCI Vest $55.00. F.O.B. Vancouver (1988).

Particular Specifications

Bare Root Bags cm (in.)	25x25x38 deep (10x10x15)
Capacity	Holds 400 - 100 seedlings
Individual Pouch Plug cm (in.)	10x10x15 deep (4x4x6)
Capacity	Holds 50 seedlings
Tree Planting Bag	"H" style harness with removable shoulder & hip pads Each pouch holds 50 seedlings
Three Pouch Plug Bag	Two units fit on belt

MANUFACTURER:

Neville Crosby Inc.
325 W 6th Ave.
Vancouver, B.C.
V5Y 1L1
TEL: (604) 873-4343
TELEX: 04-507762
FAX: (604) 873-8166

COMPONENT MULTIPOT HARNESS WITH CONTAINER HOLDER

The Component Harness with three Multipot Container Holders, combines ergonomic comfort and ease of use.

PRICE: F.O.B. Montreal (1988), Approx. $60.00, immediate delivery

Physical Specifications

The Component Harness has one inch thick, double density foam padding, covered with waterproof 410 dernier nylon, and with quick release buckles.

The Multipot Container Holder is made of galvanized steel and molded polyethylene.

Operational Specifications

The container is held in place by a metallic bracket and snap-hook, and rests on a moulded polyethylene form, so seedlings are secure.

Ergonomic design eliminates leg irritation and discomfort.

A model for use with the Spencer-Lemaire Rootrainers is now available.

MANUFACTURER:

Nova Sylva Inc.,

P.O. Box 1624,
1587 Denault St.,
Sherbrooke, Quebec
J1H 5M4
TEL: (819) 821-4617
FAX: (819) 821-4671

NOVA SYLVA PLANTING BAGS

The Nova Sylva component harness has detachable pouches used for carrying bare-root seedlings.

Component harness, with pouches (tree planting bags).

PRICE: F.O.B. Montreal (1988), Approx. $70.00 immediate delivery

Particular Specification

The harness has a one inch thick, double density, foam pad, covered with waterproof 410 denier nylon. Quick release buckles.

The pouches are made of 18 oz/sq. yard, PVC covered, polyester scrim, with double bottom.

Operational Specifications

The harness with three pouches allows the tree-planter to carry 300-800 seedlings, and distribute the weight between the waist, and the shoulders. White, water tight pouches will maintain moisture levels, and prevent heat build-up.

MANUFACTURER:

Nova Sylva Inc.,

P.O. Box 1624,
1587 Denault St.,
Sherbrooke, Quebec
J1H 5M4
TEL: (819) 821-4617
FAX: (819) 821-4671

SILVAPLANTERS MODELS PB II AND PB III

Silvaplanter PB II (above), with dual planting heads and automatic magazine and feeders, mounted on a skidder. Silvaplanter PB (III (above) with scarifier, planting heads and feed carousels, mounted on a forwarder.

The Company produces for the nursery, protected seedling containers, and for the field, mechanized planting processes. It produces two containers, models Xylon I and Xylon II, in which seedlings grow, and two mechanical planters, models PB II and PB III which make high speed automated planting possible.

PRICE: Approx. (1988), both models: $157,000 ($95,000 without scarifier option).

Operational Specifications

The Silvaplanters PB II and PB III are hydraulically-driven, intermittent spot planters.

The PB II is used for planting International Forestech's Xylon I seedling container, while the PB III is capable of planting most types of containerized seedling stock. These machines are designed for simple attachment to conventional forestry prime moving equipment.

Reported planting rate capability for both the PB II and PB III, is between 10-20,000 seedlings per 8 hour shift.

The scarifier option on each model eliminates the need for an independent machine for this type of site preparation, and its associated costs.

Particular Specification

Model	PB II (JD440C Skidder)*	PBIII (TJ Forwarder)*
Overall Length mm (in.)	9544 (234)	8200 (323)
Maximum Width mm (in.)	2946 (116)	3400 (134)
Height mm (in.)	2840 (112)	3048 (120)
Ground Clearance mm (in.)	457 (18)	622 (24.5)
Weight kg (lb.) (Planter and 2 magazines)	1950 (4,300)	3[illegible]7 (7,400)

Total weight varies with prime mover (ie. * PBIII planter mounted on the Timberjack 5 Ton forwarder, 12 928 kg (28,500 lb), and the PB II planter mounted on the John Deere 440C skidder, weight is 8 446 kg (20,825 lb).

Mechanical Specifications

Engine	JD 4cyl diesel	Cummings 4BT3-9 turbo diesel
Differential, front	full with hyd. lock	No-spin
rear	solid axle (no diff.)	No-spin
Transmission	6 speed forw.& 3 rev.	10 speed forw.& rev.
Hydraulics	94.6L/min (25 gpm) @ 2,200 rpm	98.1L/min (26 gpm US) @2,500 rpm

MANUFACTURER:

International Forestech Systems Ltd.,

120-2620 Simpson Road, Richmond, B.C.
V6X 2P9
TEL: (604) 273-1243
FAX: (604) 273-8852

DESIGN PORTABLE SHELTER SYSTEMS

Octagonal Design Shelter, 3.7 m (12 ft)

A series of portable camp cabins designed and developed to meet the growing needs of loggers, tree planters, cruisers, etc. for comfortable, reliable and easily transportable soft shelters.

The octagonal design Habitat series is available in 3.7 m (12 ft), 4.3 m (14 ft), 4.9 m (16 ft), 5.5 m (18 ft), and 6.1 m (20 ft) models. Also available are the Long Habitat series, in models:
4.0 m (13 ft) x 7.0 m (23 ft)
4.6 m (15 ft) x 8.2 m (27 ft)
5.2 m (17 ft) x 9.4 m (31 ft)
2.7 m (19 ft) x 10.7 m (35 ft).

Particular Specifications

All Habitat shelters come with four large windows, and sewn-in, insect-proof netting, as well as weathertight, clear vinyl and privacy panels on the inside. Weather skirting is also standard on all models.

The covering material is 308 g/m² (13 oz/yd²) vinyl-laminated polyester. This material has a high resistance to tearing, ripping and abrasion damage. It is also fire resistant and cold resistant to −40°C (−40°F). It is treated with mildew and ultraviolet ray inhibitors.

The frames are built of rectangular anodized aircraft grade aluminum; the lightest, yet strongest material for this application.

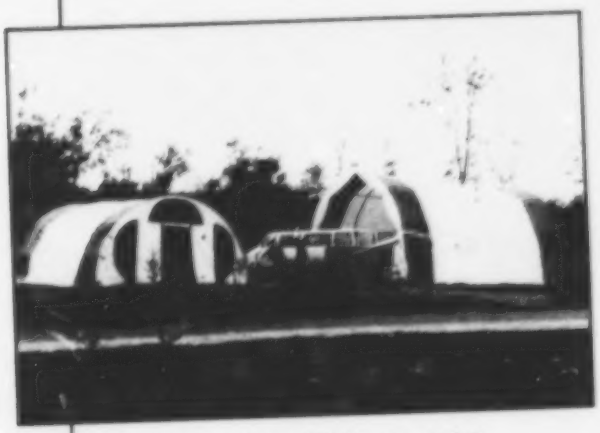
The shelters are designed to be applicable under forest type working conditions.

MANUFACTURER:

Design Shelter Systems

P.O. Box 1445 Sta. B
Mississauga, Ont.
L4Y 4G2
TEL: (416) 275-5586

WEATHERHAVEN PORTABLE SHELTERS



Weatherhaven Series 8 Shelters are used as cookhouses, washrooms, personnel accommodation, dry storage, maintenance shops, etc.

Weatherhaven Series 8 Structures. The Company manufactures two standard models of shelter, the Weatherhaven and the Polarhaven. The Weatherhaven being the standard rugged model with a frame of high strength steel or aluminum, and a cover generally high-tech vinyls. The Polarhaven is a specially adapted model for arctic environments with a frame of high strength aluminum and a cover of high-tech nylon and insulation.

PRICE: Weatherhaven Series 8 Structures, approx. prices for 1988/89
Type A: cookhouses, washrooms, personnel accomod. 4.9 (16) x 4.9 (16) x 2.9 (9.5) $2,145, with inner liner $2,420 to 4.9 (16) x 12.2 (40) x 2.9 (9.5) $3,575 with inner liner $4,150
Type B: maintenance structures
6.1 (20) x 7.3 (24) x 4.7 (15.5) $3,825 to 6.1 (20) x 14.6 (48) x 4.7 (15.5) $6,375

Particular Specifications

Type A	
Width, m (ft)	4.9 (16)
Height, m (ft)	2.9 (9.5)
Length, m (ft)	Any length in increments of 2.4 (8)
Type B	
Width, m (ft)	6.1 (20)
High, m (ft)	4.7 (15.5)
Length, m (ft)	Any length in increments of 2.4 (8)
Standard non-insulated units:	
Vinyl coated polyester, gr (oz)	4.7 (16) 5.9 (18) for 5.5 m (18 ft) wide

1 "C" door entry in end wall.
Heavy wall aluminum alloy frame, complete with spikes or lag bolts
Vinyl parts bag
Optional insulation package

Operational Specifications

The Weatherhaven can be spiked, or lag-bolted to a surface, be it the ground, ice or a floor. The covers come as one top and two ends, providing for: modular use, the option of incorporating additional length, as well as the option of changing ends to match the job.

All structures are built to the customer's specific requirements.

The available options are: stove-pipe vents, cable vents, windows, doors, exhaust fans, connector flaps, selection of colors.

MANUFACTURER:

Weatherhaven Resources Ltd.
1975 Triumph Street,
Vancouver, B.C.
V5L 1K6
TEL: (604) 254-9022
FAX: (604) 254-6676
TELEX: 04-55551

DIGITECH'S MEMO SYSTEM MICRO COMPUTER

Memo System MD-3 hand-held micro-computer designed to protect programs and data for months.

Memo MD-3 Hand-Held Micro-Computer with memory configurations up to one megabyte, used in forest inventory, scaling, maintenance, and other appropriate forest applications.

PRICE: F.O.B. (1988), Sainte-Foy, Que., MEMO, 256K $2,545. MEMO, 512K $4,125. MEMO, 1024K $6,445. Additional 128K $950.

Operational Specifications

The hand-held micro-computer is user friendly for easier use by non-computer trained personnel. It is user programmable, utilizing choice of standard programming languages (ie. Basic, Cobol, Fortran, Pascal, etc.). The case is shock and weather proof.

The Memo system provides the control link between the office computer and the various forestry operations such as timber cruising, scaling, parts inventories, etc. Data can be collected, and downloaded into the Memo's large memory, stored for subsequent transfer to the PC computer or host computer in the woodlands office.

The advantages of the system are accurate data management, faster data communications and processing, eliminating redundant data handling and reducing administrative and related costs.

Particular Specifications

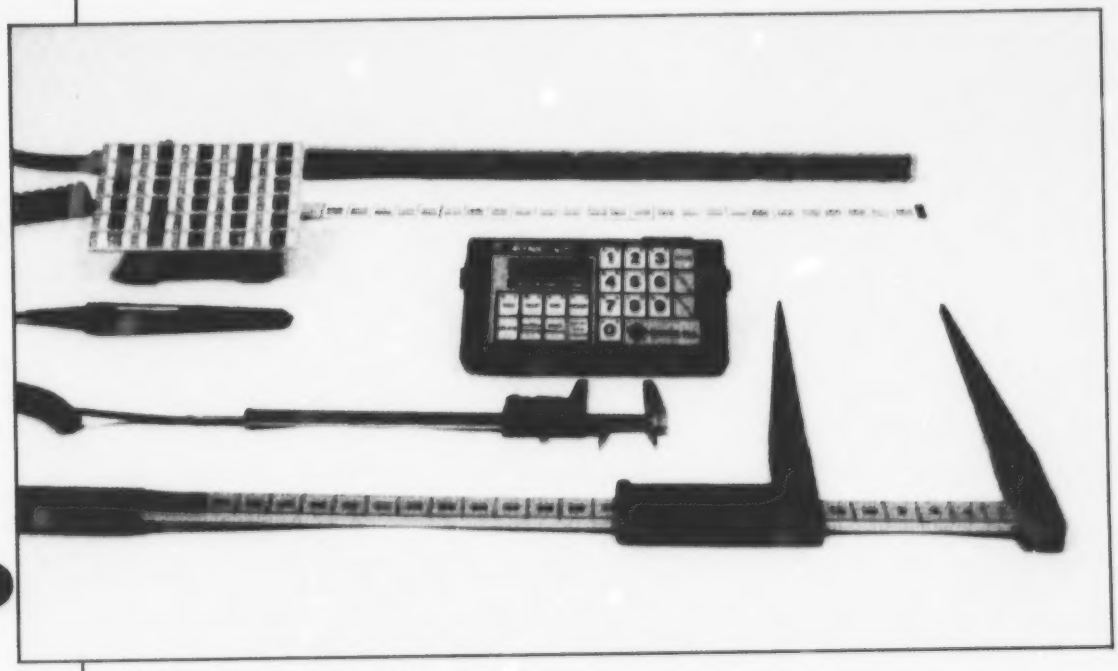
Size, cm (in.)	22.3x9.5x4.5 (8.75x3.75x1.75)
Weight, kg (oz)	0.73 (25.75)
Processor	Z80 microprocessor (CMOS)
Memory	EPROM: 32K bytes cont. CP/M RAM: 256K bytes CMOS, expandable to 1 Megabyte
Display	LCD, 64 character alphanumeric
Power	Rechargeable Nickel Cadmium Bat.
Accessories	AC charger
Operating temp. environment	−30 deg C to 60 deg C (−22 deg F to 140 deg F)
Interface	15 pin TTL connector for external
Operating System	CP/M 2.2
Programming Languages	All CP/M supported programming languages

MANUFACTURER:

DIGITECH

Member of ACSI Group Ltd.
969, Route de l'Eglise
Sainte-Foy, Que.,
G1V 3V4
TEL: (418) 653-1662
FAX: (418) 653-8790
TELEX: 051-31646

MYNIC AUTO SCALER/CRUISER



Mynic IVth Auto-Scaler/Cruiser and accessories

The Mynic IV auto/scaler/cruiser is a hand-held micro-computer, data recorder with available accessories for making scaling and cruising measurements.

Operational Specifications

The fundamental objective in using a data recorder such as the Mynic, is direct data capture to eliminate the costs and delays of separate data entry/edit.

The data captured on the peripheral measuring and encoding devices, is stored in the data recorder, until it is convenient to upload it into the office computer.

The Mynic IV is utilized principally in data collection in scaling, cruising, silviculture, reforestation studies, inventory counting or nursery applications.

Scalers choose between an electronic rigid scale stick, or a flexible stick with an electronic data reader.

Cruisers can select the electronic caliper that best suits their application. Calipers range from the large 50 cm (20 in.) capacity, to small diameters available for nursery applications. Both metric and imperial devices are available.

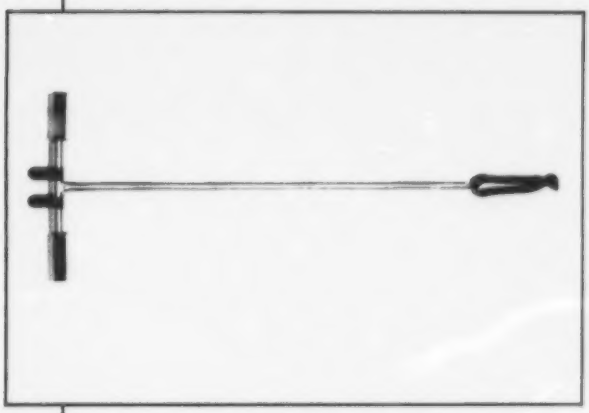
The Mynic IV combines rugged environmental sealing, and the ability to carry substantial amounts of data.

MANUFACTURER:

Mynic Inc.

Incutech Complex
Bag Service 69000
Fredericton, N.B.
E3B 6C2
TEL: (506) 453-4606

SOIL SAMPLING AUGER, DUTCH STYLE



Soil sampling auger has stainless steel shaft, vinyl handle grips and heat treated cutting edge

Soil Sampler and shaft extensions for the soil sampling auger are available from the manufacturer.

PRICE: F.O.B. Montreal,(1988) is approx. $ 71.00 with immediate delivery

Particular Specifications

Handle:		
	Height	1 m (39 in.)
	Width	43 cm (17 in.)
	Material	Stainless steel tubing 22 mm (7/8 in.)
Bit:		
	Height	24 cm (9.5 in.)
	Width	7.5 cm (3 in.)
	Material	Carbon steel, heat treated

Operational Specifications

The soil sampling dutch auger has an improved bit design, according to manufacturer specifications, for easy soil penetration and better sample retention. In addition, the long life, hardened cutting edge, and stainless steel construction, combine with durability and favourable aesthetics in this quality product.

MANUFACTURER:

Nova Sylva Inc.,

P.O. Box 1624,
1587 Denault St.,
Sherbrooke, Quebec
J1H 5M4
TEL: (819) 821-4617
FAX: (819) 821-4671

THE PACKRAT, MULTI-PURPOSE VEST

The Packrat multi-purpose outdoor vest.

Outdoor Cruising vest accomodates the needs of Foresters, and also Geologists, Surveyors, and the natural science professions. The Company manufactures the Packrat, and other vests of single, or double-fill canvas.

Particular Specifications

Item	K.C.C. Packrat	Other Vests
Material	# 12 or army duck canvas Double ply twisted thread both directions Increased wear and resistance	Single or double-fill canvas Single thread both directions or double ply one direction
Water Repellancy	High levels	None to low
Pockets	20	8 to 17
Stitching	Double and triple	Single
Grommets	10 brass spur	Up to 5 plated sheet
Handwarming	Yes	No
Safety Stripe	3M optional at no cost	Some
Custom Embroidery	Logos and names	No
Warranty	2 years	No

MANUFACTURER:

Kootenay Canvas
Company Ltd.,
171 Dufferin Street South
Unit 1, Alliston, Ont.,
L0M 1A0
TEL: (705) 435-2211
FAX: (705) 435-7369

LOGGING AND TRANSPORT: FELLING
LOGGING AND TRANSPORT
Felling

Page

Manual Felling and Crosscutting 76

Hand Forestry Tools
- Fermax Forestry Hand Tools 76
- Keystone Forestry Tools 77

Saws and Accessories
- Pioneer Chain Saws 78
- Goldec Log Wizzard 79

Complementary Equipment
- Opsal Tree Climbers Gear 80
- Safety Link, Personal Emergency Alarm Buddy System 81

Mechanical Felling 82

Feller-Bunchers
- Finning Tree Harvester, Feller Buncher 82
- Koehring Feller Buncher 83
- Timberjack Timbco Feller Buncher 84
- Tanguay Model A-200 Feller Buncher Module 85

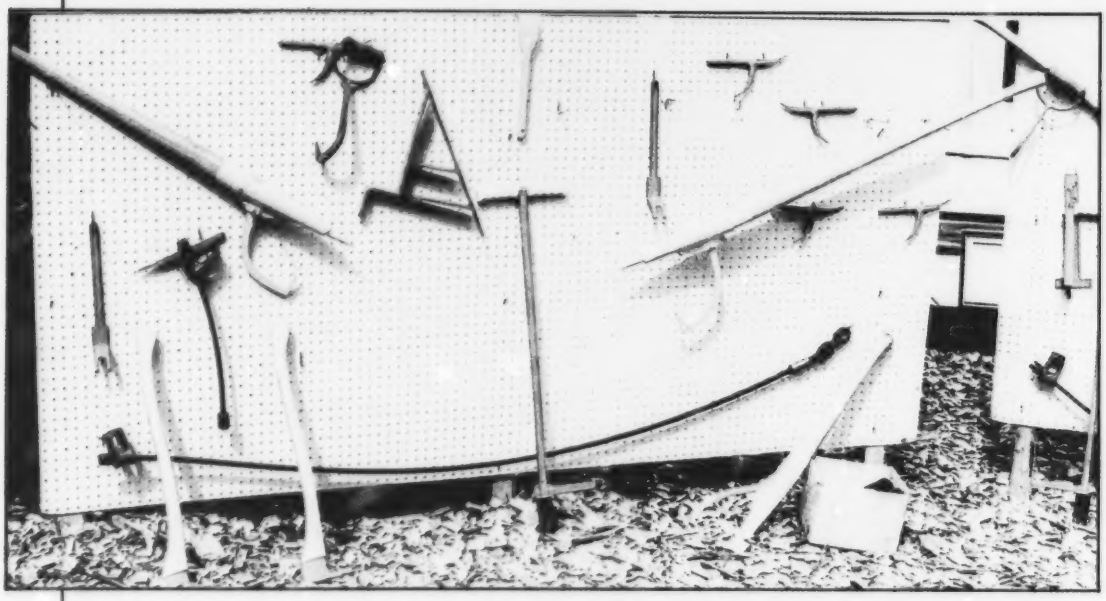
Attachments, Shears
- Dika Feller Buncher-Director 86
- Dika Supersaw, Feller Buncher Head 87
- Harricana Tree Feller-Buncher 88
- Tanguay Oscillating Felling Head 89

Attachments, Chain Saw
- Denis Directional Felling Head 90

Attachments, Circular Saws
- Harricana Circular Saw Felling Heads 91
- Koehring Disk Saw Felling Heads 92

Complementary Equipment
- Acra Cut Saw Sharpener 93
- Balderson Logging Fronts and Machine Guard Groups 94
- Weldco Beales Heavy Duty Woodland Undercarriage 95

FERMAX FORESTRY TOOLS



Fermax forestry hand tools

Fermax manufactures forestry hand tools, such as: Pulp hooks CD10-DL-3,5,1,R CBB-A-70, Log hooks CB-22-22, Cant Hooks PV-CH-OO, Peaveys PV-30- 00, Gaff heads with curve or straight pike GA-40-TC,TD, Pickaroons TPN-000, Grab Rods and ring for low bed CCC-111, LB-00-00

Particular Specifications

Fermax Pulp hooks are made from one piece tool steel, 30 cm (12 in.) long, weighing approximately 0.5 kg (1 lb). They are available with replaceable tips.

Solid socket peaveys are manufactured with picks and hooks made from tool steel for strength and heavy usage. Handle diameters are from 5.7 cm (2.5 in.), weight from 3.4 kg (7.5 lb), and length from 0.9 m (3 ft).

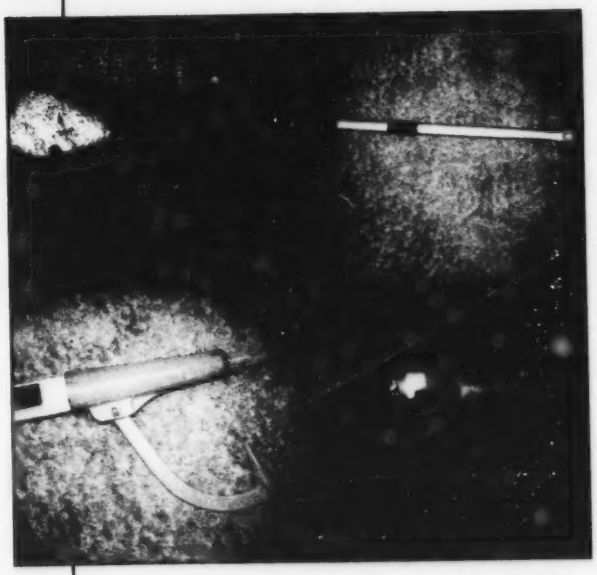
Cant hooks are available in lengths of: 51 cm (20 in.),76 cm (30 in.), 91 cm (36 in.), 106 cm (42 in.). Replacement hooks for cant dogs, are also available.

MANUFACTURER:

Fermax Inc.

616, 11th Avenue
St. Zacharie, Beauce South
Quebec G0M 2C0
TEL: (418) 593-3224

KEYSTONE FORESTRY TOOLS



1. Keystone hookaroon in light or standard forged steel, heat treated for strength and durability 2. Pike Poles of high strength aluminum/magnesium alloy, with innovative ribbed wall design 3. A 2⅛ inch diameter steel socket, heavy hook, duck bill peavey. 4. Keystone axe.

Keystone manufactures forestry hand tools such as axes, peaveys, pike poles, hookaroons, cant hooks, pulaskis, sledge hammers, tow chains and other hand tools.

Particular Specifications

Hookaroons: Light 0.45 kg (1 lb.) or heavy 0.8 kg (1¾ lb.) duty types.
Forged steel heads with no. 4 axe handle eyes (gauge 219); 61.0 cm (24 in.), 71.1 cm (28 in.), 81.3 cm (32 in.) or 91.4 cm (36 in.) handle lengths are available.

Pike Poles: Available in lengths ranging from 15.2 cm (6 in.) to 76.2 cm (30 in.) with carbon steel pike and hooks, heat treated. Handles are available in anodized, natural, heavy duty natural and ash hardwood finishes.

Peaveys: Duck bill design hooks made of carbon steel 1.1 cm (7/16 in.) x 2.2 cm (⅞ in.) x 30.5 cm (12 in.), designed to prevent hook backslap. Maple handles in lengths from 0.91 m (3 ft) to 1.52 m (5 ft).

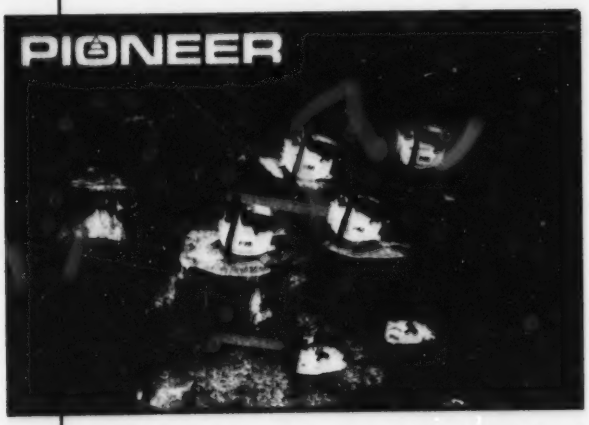
Axes: Heads are forged from a solid bar of high carbon special alloy steel, heat treated for strength and wear resistance, finished with baked enamel and laquered for protection against rust. Available in single and double-bit Michigan pattern, chain saw Montreal pattern, pulaski and firefighting patterns.

MANUFACTURER:

Keystone Supplies Company,

11060 River Rd.,
Richmond, B.C., V6X 1Z5
TEL:(604) 273-4557
FAX: (604) 273-1006
TELEX: 043-55609

PIONEER CHAIN SAWS



Pioneer chain saw line from 34 cc to 98 cc to meet forest users needs.

Pioneer Chain saws are available in models P12 (hobby saw), P14 (casual users saw), P39 (semi-pro model), P42 (pro model), P52+ (pro plus saw) and P62/P65 (top of the line saw, super pro model). Equipped with bars from 356 to 914 mm (14 to 36 inches), depending on model.

PRICE: P12 with 14 in. bar $129
P14 with 16 in. bar $144
P39 with 16 in. bar $ 298
Prices effective August 1, 1988 in U.S. dollars.
P42 with 16 in. bar $319
P52+ with 20 in. bar $349
P62 with 36 in. bar $406

Operational Specifications

For the extra tough applications that require power, the Pioneer 52+ available with 40.6 cm (16 in.) to 91.4 cm (36 in.) bars, may be appropriate. The super pro, top-of-the-line Pioneer P62/P65 saws are built to handle professional applications. They feature a 98 cc engine, with a 40.6 cm (16 in.) to 102 cm (40 in.) bar, to meet the loggers demanding requirements.

Particular Specifications

Model	P12	P14	P39	P42	P52+	P62/P65
Cylinder Capacity c.c.	34	34	65	65	82	98
Top Engine Speed RPM	8.0	8.0	8.5	9.6	9.6	9.6
Fuel Capacity litres	0.3	0.3	0.77	0.77	9.4	9.4
Oil Capacity litres	0.12	0.12	0.37	0.37	0.41	0.41
Guide Bar, Standard	12″-16″	12″-16″	26″-24″	26″- 32″	16″-36″	16″-40″
Chain Pitch	3/8″ LP	3/8″ LP	3/8	3/8	3/8″-404″	3/8″-404″
Weight* kg	4.0	4.2	7.0	7.5	8.2	8.5

* Powerhead only.

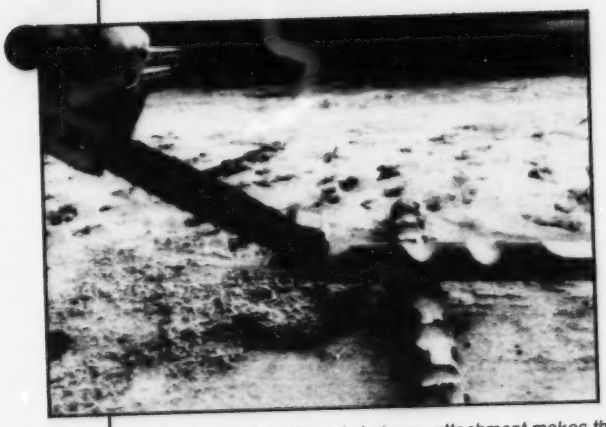
All saws come equipped with chain brake, automatic oiler and electronic ignition. All saws except the P12 have antivibration damping. The P62/P65 can also be oiled manually.

MANUFACTURER:

Emab Canada,Div. of Euroclean Canada Inc.

**P.O. Box 549,
Canada Ave., Huron Park,
Ontario, N0M 1Y0
TEL: (519) 228-6514
FAX: (519) 228-6124
TELEX: 064-7181**

GOLDEC LOG WIZARD



The Goldec Log Wizard chainsaw attachment makes the chainsaw into a tool used as a de-barker, router, planer and notcher.

The Log Wizard is a chainsaw attachment which turns it into an effective de-barker, notcher, router and planer.

Goldec also manufactures the Nifty Feed Dispenser, Hamm's Tanks Storage Tanks, Tool Boxes, Skid Frames, Overhead Hoists, Mobile Home Frames, Custom Made Trailers, Bumpers, Truck Decks, and also undertakes Structural Fabricating Welding.

Particular Specifications

Weight: Under 1.4 kg (3) lb.
Planer Blades: Standard 8.3 cm (3¼ in.)
Universal spline and sprocket system: sprockets accomodate all pitches of chain
Adaptable to all chainsaws

Operational Specification

Most commonly used for construction of pole barns, rail fencing, log home building, to sharpen posts, wood debarking, and planning.

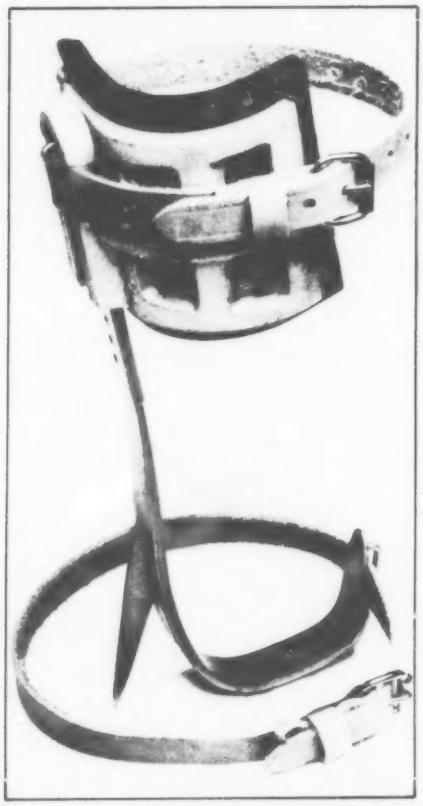
Simply attached through two bolts on the chain bar , it comes with a universal spline and sprocket system.

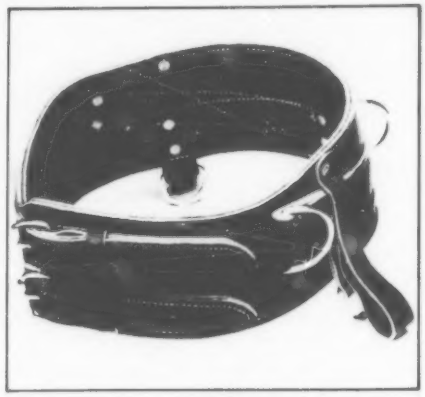
MANUFACTURER:

Goldec International Equipment Ltd.

6760 - 65th Ave.
Red Deer, Alta., T4P 1A5
TEL: (403) 343-6607
FAX: (403) 340-0640

OPSAL TREE CLIMBERS GEAR





Opsal Steel's climbers gear consisting of a 1.3 cm (½") thick foam pad, spurs and 71 cm (28") English leather straps, climbers belt and 2.2 cm (⅞") hemp rope with steel wire core.

Opsal manufactured logging equipment consists of the following: blocks, such as passline, haulback line, transfer, yarding, highlead, snatch, hoisting, general purpose types, used on cable logging systems; tree jack sheaves, supporting cables used on skyline systems; carriages; fairleads; and tree climbers gear for loggers and high riggers.

Tree climbers gear consists of: an aluminum pad with liner, model 600-010; spurs,model 600-025; straps, model 600-020; belt, model 600-015; rope, model 600- 030

Particular Specifications

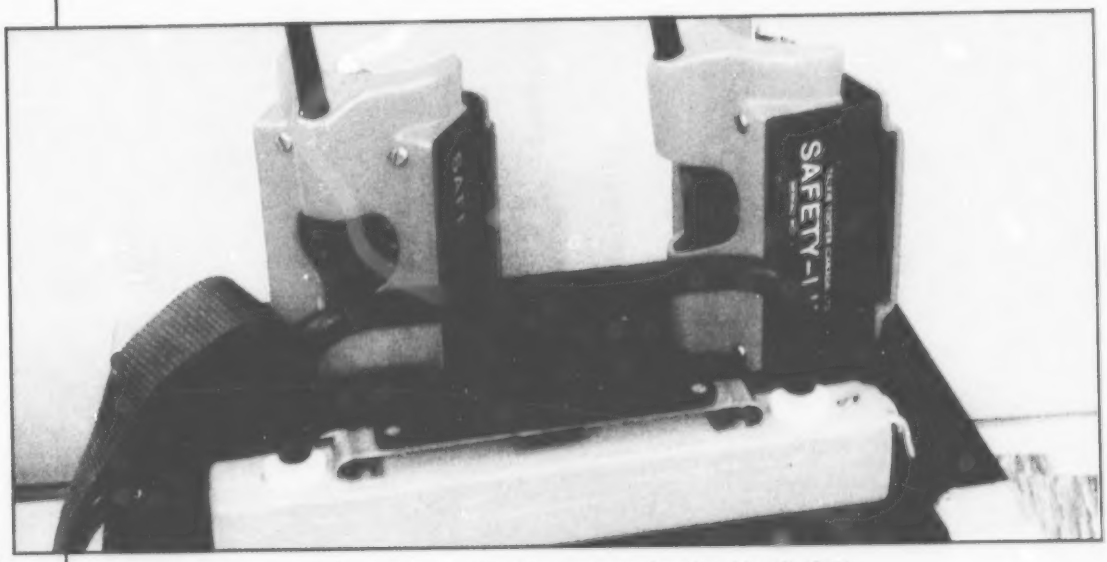
Climber's pad	Cast aluminum for strength and light weight Liner has 1.3 cm (½ in.) thick foam pads Fits Klein or Buckingham Spurs
Spurs Gaffs, cm (in.) Safety Rope, cm (in.)	 8.9 (3½) long, with adjustable lengths 2.2 (⅞) Hemp with steel wire core (Workman's Compensation Board approved)
English Leather straps, cm (in.) Climber's belt, cm (in.)	 71 (28) with heavy duty buckles for strength and safety 13.3 cm (5¼) wide, premium grade leather, with h.d. buckles for strength and safety.

MANUFACTURER:

Opsal Steel Ltd.,

97 E. Second Ave.,
Vancover, B.C., V5T 1B3
TEL: (604) 879-1531
FAX: (604) 879-6766

SAFETY LINK, PERSONAL EMERGENCY ALARM BUDDY SYSTEM



Safety-Link units, a buddy alarm system designed for dangerous forest working situations.

Particular Specifications

2-Way radio contact
Range over 500 m (1,640 ft)
Manual alarm push button switch
Rugged, plastic case, water-resistant
Rechargeable battery
Alarm signal, 90dB beeps
Flashing LED signals for O.K. status
Operating Temp. Range, C −30 to 60 deg.

Operational Specifications

The two-way transmitter constantly monitors the two fellers working out of sight of each other. If one man is in trouble, he presses the alarm button on the unit. Within seconds, the second man's unit sounds an alarm to let him know that help is required. Even if he is knocked unconscious, or can't reach the hot button, the internal motion sensor alerts the other man of trouble within a minute.

If a unit is malfunctioning, or the other man has gone out of range, a warning sounds in the other unit. For breaks, a rest mode temporarily inactivates the motion sensor, with a beep every 5 minutes reminding the user of the unit's rest status. It can, however, still send out a manual alarm.

The Company also handles the following products: radiowhistles, grapple yarder radios, industrial loudhailers, custom emergency signalling systems, custom radio controls, communication headsets.

PRICE: Complete Safety-Link System $2,495 F.O.B. Vancouver (1988)
Consists of: two safety links, two safety-link charges, one carrying case.
Components and Accessories: Safety-link $1,247. Charger $30.

MANUFACTURER:

Talkie Tooter (Canada) Ltd.
8264 St. George St.
Vancouver, B.C., V5X 3S5
TEL: (604) 327-9779
FAX: (604) 327-9779

FINNING TREE HARVESTER (FELLER BUNCHER)

Modification of Caterpillar's model 227 Logger with Finning's full guarding package, boom and stick and choice of feller heads

Custom engineered by Finning by modification of the Caterpillar Model 227 Logger. Available as Finning Tree Harvester Model FB227 Turbo Diesel and the Model FB219 Finning Tree Harvester.

Particular Specifications

Caterpillar Undercarriage
Reinforced 235 body
D6 sealed track group,
4.6 m (15 ft) length
1.9 cm (¾ in.) track roller bolts
61 cm (24 in.) single grouser shoes
61 cm (24 in.) ground clearance
0 to 1 3/5 mph infinite control

Drawbar Pull: 23,938 kg (52,773 lb)
Weight (less cutting head): 30,992 kg (68,324 lb)
Finning / Approved Attachments:
Cat shear head (side tilt saw head, 51 cm (20 in.) cut
Koehring 56 cm (22 in.) front cut, side tilt saw head
Koehring 51 cm (20 in.) side cut, side tilt saw head
Harricana 51 cm (20 in.) front cut, side tilt saw head
Forano (Tanguay) BJ20 shear head
Weyerhaeuser W34 felling grapple with Finning improved heavy duty

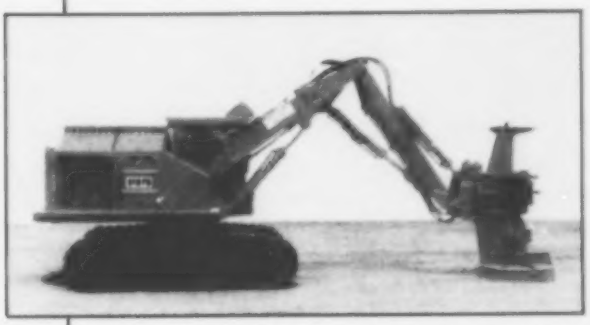
Mechanical Specifications

Pump drive
Dedicated Vickers PC pump, for saw operation
Main implement pump, underspeed valves
235 Radiator and cooler
Improved Rex Roth pilot controls
W.C.B. door and rear escape window guards
Improved FOPS structure and mounting
25 percent heavier logging boom
Custom guarding logging group
Simultaneous swing and travel, swing and side tilt
Finning built peaked roof house deflector
Optional Equipment on the FB219 Tree Harvester:
Rotosaw 46cm(18in) sawhead c/w tilt and collector arm
Forano 51cm(20in) model 505-4 head c/w Finning head tilt
Harricana CS500 sawhead c/w tilt and accumulator

MANUFACTURER:

Finning Ltd.
555 Great Northern Way
Vancouver, B.C., V5T 1E2
TEL: (604) 872-4444
FAX: (604) 872-2994
TELEX: 04-508717

KOEHRING FELLER BUNCHERS



The Koehring K625 feller buncher, specifically designed to handle large trees, as found in British Columbia, Canada

Koehring Canada is a manufacturer of pulp mill, logging and construction machinery. Its line of tree harvesting machinery products is as follows: tree harvesters, feller forwarders, feller skidders, feller bunchers, log load aligners, log loading cranes and yarders. The feller bunchers are available in models K628, K618 and K 625.

Optional Equipment

All machines have optional automatic fire suppression systems, hydraulic oil heater and cab air conditioning.

Optional on all machines is the 510 mm (20″) front or side cut saw with multiple tree capability, available with or without wrist action. Also optional on the model K625 is the 610 mm (24″) shear and a 560 mm (22″) disc saw, both with multiple tree capability, with or without wrist.

Operational Specifications

The model 618 feller buncher weighs some 25850 kg (57,000 lb) featuring a heavy duty unitized carbody with D6D size track componentry, supporting a heavy duty, unitized, rotating upper structure.

Ground pressures of 41.4 kPa (6 psi) have been achieved with the longer 3835 mm (151 in.) track frame and the use of 762 mm (30 in.) wide track shoes.

Designed in-track approach angle minimizes soft soil disturbance, by keeping tracks on top of the ground surface, as well as assisting with manoeuverability over stumps, rocks and other obstacles, reducing loads on final drives, end idlers and other track componentry.

The final drive is powered by variable displacement piston pumps and motors, provides speeds up to 4 km/hr (2.5 mph) and a drawbar pull of 22,226 kg (49,000 lb).

Optimum cutting speed, and high productivity of the disc saw felling head, is maintained by the hydraulic saw drive circuit.

Particular Specifications

Model	628	618	K625
Length mm (ft.)	5490 (18.0)	5100 (16.8)	5330 (17.5)
Max. Width mm (ft.)	3120 (10.3)	3070 (10.1)	3120 (10.3)
Height mm (ft.)	3300 (10.8)	3250 (10.7)	3300 (10.8)
Ground Clearance mm (ft.)	530 (1.8)	530 (1.8)	534 (1.9)
Weight kg (lb.)	33100 (73,000)	25850 (57,000)	31100 (68,500)

Mechanical Specifications

Model	628	618	K625
Engine	Cummins 6CT8.3 154kW @ 2100 RPM (207 HP)	Cummins 6BTA5.9 126kW @ 2100 RPM (169 HP)	GM 4-71T 138kW @ 2000 RPM (185 HP), Optional CAT 3208T 149kW HP @ 2000 RPM (200 HP)
Cab	All machines are fully sound and temperature insulated.		
Felling Head	560 mm (22″) front cut disc saw	510 mm (20″) front cut disc saw	510 mm (20″) shear

MANUFACTURER:

Koehring Waterous, Div. o Timberjack Inc.,

P.O. Box 490,
Market St. South,
Brantford, Ont.
N3T 5P6
TEL: (519) 752-6571,
FAX: (519) 752-3413
TELEX: 061-81117

TIMBERJACK TIMBCO FELLER BUNCHERS

Timberjack Timbco Model 2518 Feller Buncher. One of three models of track type feller bunchers

Timberjack is a world recognized name in the skidder industry, as well in the design and manufacture of mechanical logging equipment. Timberjack produces a wide range of forestry equipment: cable skidders, grapple skidders, clambunk skidders, log forwarders, mobile delimbers, feller bunchers and mining vehicles.

Track type feller bunchers are available in models 2515, 2518 and 2520.

Optional Equipment

Long stick boom for use with the Timbco shear, in delimber applications, tropical cooling-full front engine radiator, and two, full-length, side oil coolers.

Operational Specifications

The Timbco feller buncher is available in three models: the 2515 and 2518 with a short body and short tracks, and the 2520 with a longer body and long tracks for added stability on steep grades and rough ground, and dealing with big wood operations. The 2515 and 2518 have single speed drive, while the 2520 has two speeds for maximum tractive power.

Timbco track-type mechanical feller bunchers cut trees and lay them down in bunches. Tilting swing table facilitates steep slope operation on grades to 50%.

Lower limb delimbing capability, depending on felling attachment used.

Particular Specifications

Model	2515	2518	2520
Overall Length* mm (in.)	4902 (193)	4902 (193)	5182 (204)
Maximum Width mm (in.)	2743 (108)	2794 (110)	3048 (120)
Height** mm (in.)	3658 (144)	3658 (144)	3658 (144)
Ground Clearance mm (in.)	673 (26.5)	673 (26.5)	673 (26.5)
Weight*** kg (lb.)	19369 (42,700)	21773 (48,000)	23134 (51,000)

*Length does not include boom.
** Less skylight.
*** Does not include attachment.

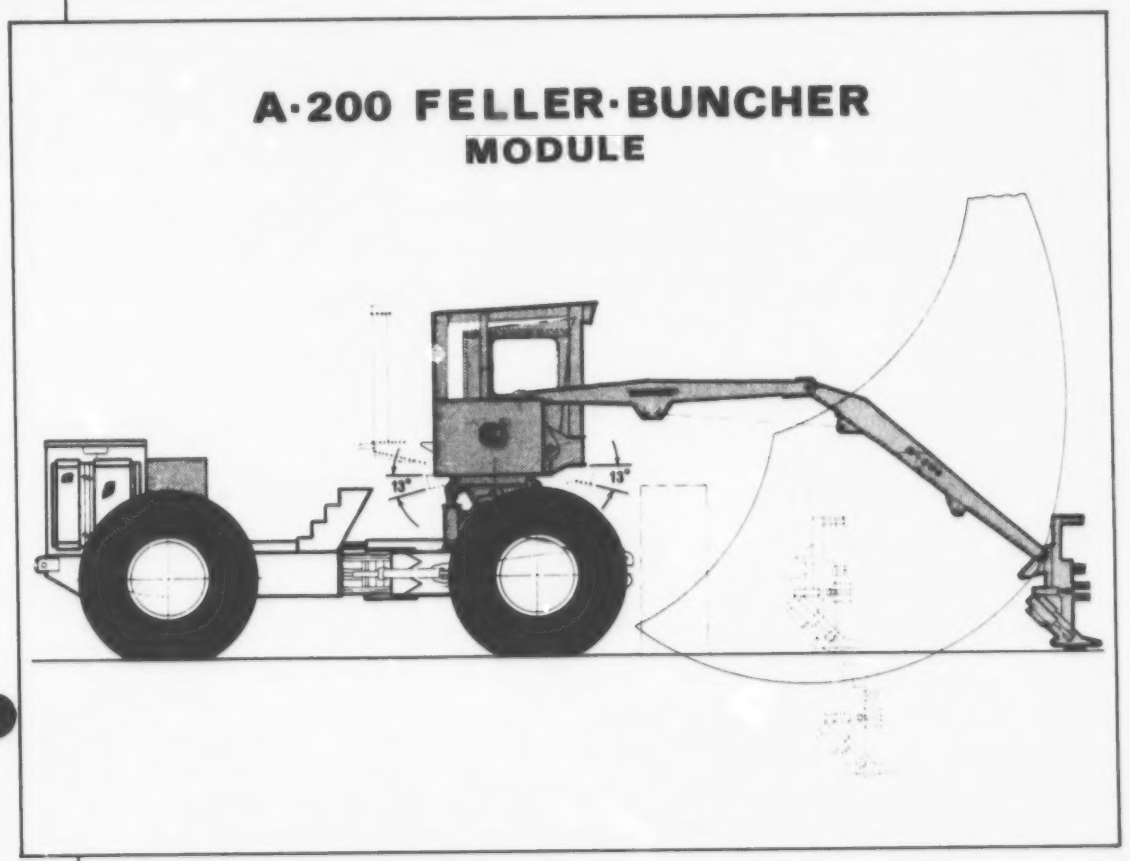
Mechanical Specifications

Engine	JD 6466T, 132 kW (177 HP) @ 2100 RPM Deere or Cummins turbo diesel engine.
Starting	Direct electric
Air Cleaner	Dry type
Power Train	Hydrostatic drive
Steering	Triple pump with disengagable double plate clutch

MANUFACTURER:

Timberjack Inc.,
925 Devonshire Ave.,
P.O. Box 160
Woodstock, Ont.,
N4S 7X1
TEL: (519) 537-6271
FAX: (519) 539-4750
TELEX: 064-74118

TANGUAY MODEL A-200 FELLER BUNCHER MODULE



Tanguay model A-200 feller buncher module, turntablewith heavy duty swing drive, cab with ROPS, hydraulic reservoir pumps and filters.

Tanguay are manufacturers of slashers, log loaders, delimbers, feller bunchers and attachments.

The Tanguay A-200 feller-buncher module carrier is to be supplied by purchaser, with the recommended Koehring type carriers or equivalent, powered by Caterpillar 3306-T diesel engine, rated at 200 HP, where modifications required to the carrier are minimal.

Particular Specifications

The Tanguay model A-200 feller buncher module is specially designed to be installed on a Koehring chassis to provide a machine with high ground clearance, low ground pressure and efficient operating speeds. The standard felling head is the BJ-20 with spherical shear. Most popular shears and saw heads can however be used with this unit.

Rotation is on a 1372 mm (54in.) diameter turntable bearing. A piston type hydraulic motor provides smooth and precise control.

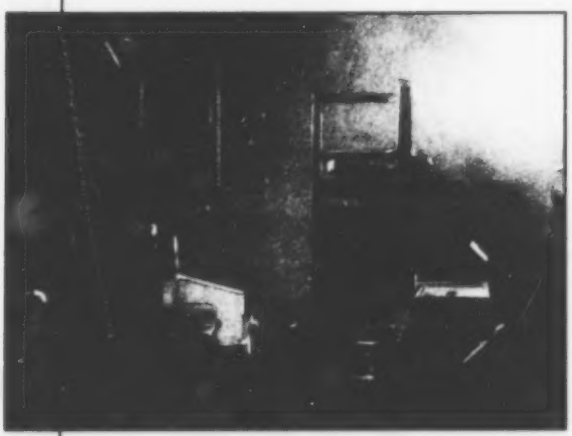
The unit is equipped with the unique Tanguay four-way tilt, providing 13 degrees tilt from the horizontal on four sides.

R.O.P.S. for cab, fully insulated, with pressurizer and comfortable seat; joystick controls for felling operation, travel and braking.

MANUFACTURER:

Tanguay Industries Inc.,
2997 Watt St.,
Quebec, Que.,
G1X 3W1
TEL:(418) 658-1315
FAX: (418) 658-6747
TELEX: 051-31676

DIKA FELLER BUNCHER-DIRECTOR ATTACHMENT



The Dika Feller Buncher-Director attachment. The front view (left) of the 28 in. (71.1 cm) model with saw partially open. The slim anvil and the protective sheath protect the saw chain from damage in the fully open and closed positions. Side view(right) of 28 in. (71.1 cm) model showing grab arm, collector arm, side tilting tower and foreward tilt mechanism.

Dika Models 21 in. (53.3 cm), 24 in. (61.0 cm), 28 in. (71.1 cm) and 36 in. (91.4 cm) feller buncher-director mounts on a tractor or loader, crawler or rubber undercarriage.

Dika Industries are manufacturers of feller-buncher attachments, land clearing and preparation equipment.

Operational Specifications

Side tilting tower eliminates extra turning of the tractor. Combining the side tilt, with the foreward tilt, results in placing trees anywhere in a 150 deg. arc to the front and to the left of the operator. Tower tilts 45 deg. to left, 15 deg. right, 36 deg. forwards and 15 deg. back.

Collector arm (optional) allows two or three smaller trees to be collected and dumped simultaneously.

Particular Specifications

Model	21 in.	24 inch	28 inch	36 inch
Length, cm (in.)	168 (66)	178 (70)	178 (70)	
Width, cm (in.)	150 (59)	157 (62)	165 (65)	on application
Height, cm (in.)	224 (88)	244 (96)	254 (100)	
Weight, kg (lb.)	2268 (5000)	2631 (5800)	2948 (6500)	

Mechanical Specifications

Hydraulic requirements:		
Saw Circuit,	3788 (50) to 4925 (65)	4925 (65) to 6440 (85)
m^3/sec (gpm) @ 2650 psi	(21 & 24 in. models)	(28 & 36 in. models)
Grab & Feed Circuit,	1515 (20) to 1915 (25)	1915 (25) to 2652 (35)
m^3/sec (gpm)		
5.7 cm(2¼ in.) kerf saw chain		
5.1 cm (2 in.) saw bar		

Manufacturer:

Dika Industries Ltd.

P.O. Box 117
Rycroft, Alberta,
T0H 3A0
TEL: (403) 765-3894
FAX: (403) 765-3001

DIKA SUPERSAW, FELLER BUNCHER HEAD

Dika Supersaw Feller Buncher Head with 5.7cm(2 1/4in) hydraulic chain saw equipped with tungsten carbide hardened chain cutters. Note the slim anvil and protective sheath. Note also the free-floating grab arms. Optional collector arm is available.

Available in models 21 in. (53.3 cm), 24 in. (61.0 cm), and 28 in. (71.1 cm). The Feller buncher heads mount on backhoe-type carriers. Dika Industries also manufactures brush rakes and cutters, plows, root harrows, root rakes, swathers, and most recently has been developing the Dika 100 in. (254 cm) short log processor.

Operational Specifications

The sawing cycle is automatic. Speed of the saw feed is governed by the load on the saw chain. If the saw stops while in operation, the saw will back out automatically until the chain starts, and then feed back to finish the cut. Indicator lights warn the operator of the condition.

The chain can be repaired, if damaged, with a hammer and punch. Chain teeth can be touched up with a small angle grinder.

The 5.7 cm (2¼ in.) hydraulic chain saw is used in both hard and soft wood, minimum 8.9 cm (3½ in.) in diameter. The grab arms are designed to compensate for misalignment of trees and the feller attachment.

Particular Specifications

Models	21 inch	24 inch	28 inch
Length, cm (in.)	168 (66)	178 (70)	188 (74)
Width, cm (in.)	150 (59)	157 (62)	188 (74)
Height, cm (in.)	249 (98)	254 (100)	259 (102)
Weight, kg (lb.)	2041 (4500)	2291 (5050)	2540 (5600)

Mechanical Specifications

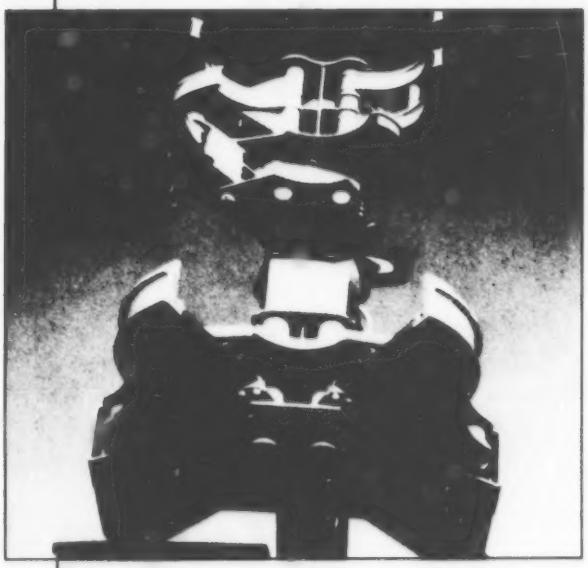
Hydraulic requirements:	
Saw Circuit,	3788 (50) to 4925 (65) 4925 (65) to 6440 (85) m³/sec (gpm) @ 2650 ps (21 & 24 in. models)
Grab & Feed Circuit,	1515 (20) to 1915 (25) 1915 (25) to 2652 (35) m³/sec (gpm) @ 2200 psi
Chain saw kerf,	5.7 cm (2¼) in.
Chain saw bar,	5.1 cm (2 in.)

MANUFACTURER:

Dika Industries Ltd.

P.O. Box 117
Rycroft, Alberta,
T0H 3A0
TEL: (403) 765-3894
FAX: (403) 765-3001

HARRICANA TREE FELLER-BUNCHER



The feller has a large cutting capacity, up to 50 cm (20 in.) in most species of softwood; a similar version of the feller is offered, specially adapted to hardwoods

Harricana feller-buncher models 5012-STA, 5015-STA and 5018-STA are adaptable to all hydraulic excavators, and most wheeled or crawler loaders. They are available in three types: low, medium and high pressures.

Operational Specifications

The knife blades are bolted on, and adjustable, positioned at a 6 deg. angle, which facilitates cutting into the tree's base and diminishes splitting. Trees cut this way meet the demands of many sawmills. The feller is also equipped with a side tilt device that facilitates cutting trees that are slanted or on hillsides.

The accumulator option permits cutting more trees, in less manoeuvers, increasing significantly the feller's productivity in trees with average diameter less than 25 cm (10 in.).

Particular Specifications

Base width, mm (in.)	1168 (46)
Height, mm (in.)	1880 (74)
Arm Opening, mm (in.)	1143 (45)
Max. Stem Diam. (softwood) mm (in.)	500 (20)
Side Tilting, deg.	17
Cutting Angle, deg.	6
Knife Thickness, mm (in.)	16 (5/8)
Weight (without accumulator), kg (lb)	1837 (4050)
(accumulator incl.)	2019 (4450)

Mechanical Specifications

Model	Pressure kPa (lbs/in²)	Cylinder Knives mm (in.)	Pump Delivery l/min (gpm)	Close Time, sec
5012STA	28 000 (4000 and up)	127 (5)	151 (40)	2.04
5015STA	17 500 to 28 000) (2500-4000)	152 (6)	227 (60)	1.96
5018STA	17 000 or less (up to 2500)	179 (7)	302 (80)	2.00

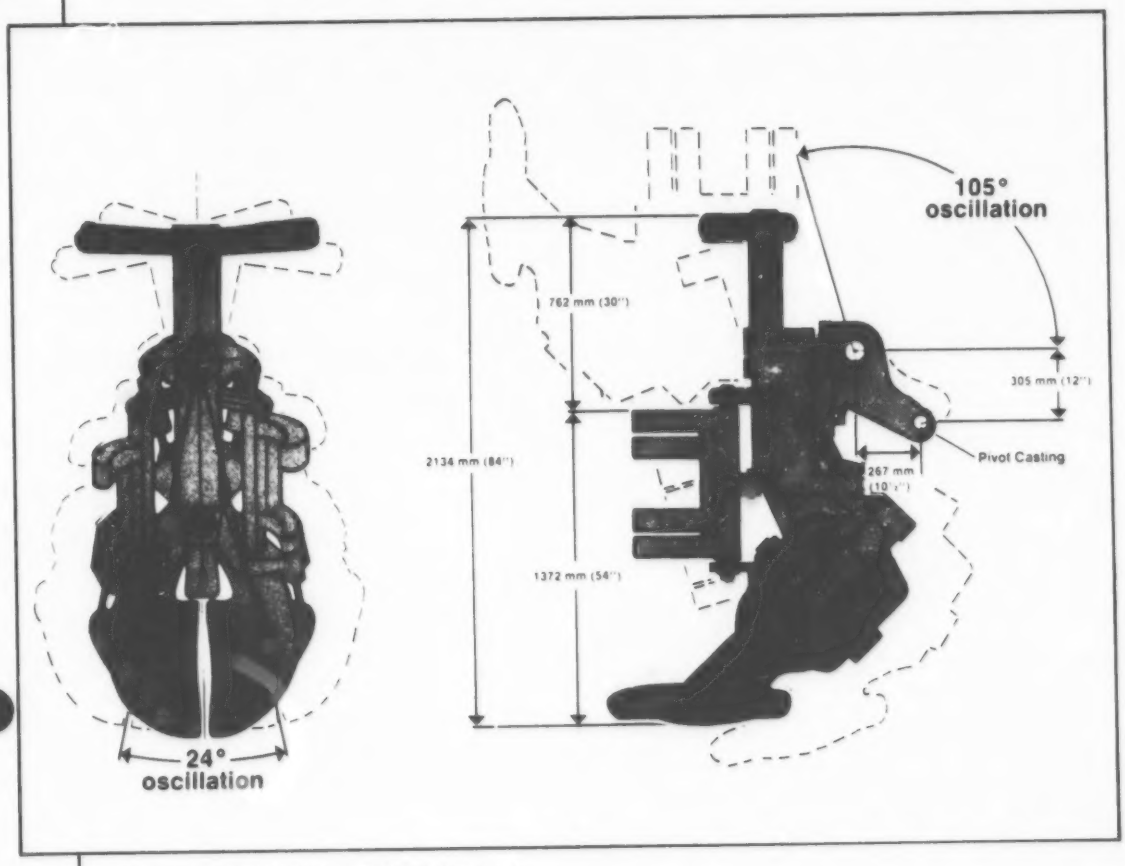
Optional: Accumulator
Tree feller-buncher for hardwoods
Rigid type (without side tilt)

MANUFACTURER:

Harricana Metal Inc.

P.O. Box 550, Amos, Que. J9T 3A8
TEL: (819) 732-8381
TELEX: 057-46647
and also in Delta, B.C.,
TEL: (604) 943-9692
FAX: (604) 943-1565

TANGUAY MODEL BJ-505-4 OSCILLATING FELLING HEAD



Tanguay model BJ505-4 oscillating felling head.

Tanguay are manufacturers of slashers, log loaders, delimbers, feller bunchers and attachments.

Felling heads are available in model BJ-505-4, with side oscillation, and model BJ-505, without oscillation. Both heads are reinforced for use on crawler carriers, but can also be used on almost any crawler or wheeled swing type carrier.

Operational Specifications

Both felling heads are reinforced for use on crawler carriers. The heads can be adapted to almost any crawler, or wheeled swing type carrier.

The patented curved type blades offer minimum butt damage.

Particular Specifications

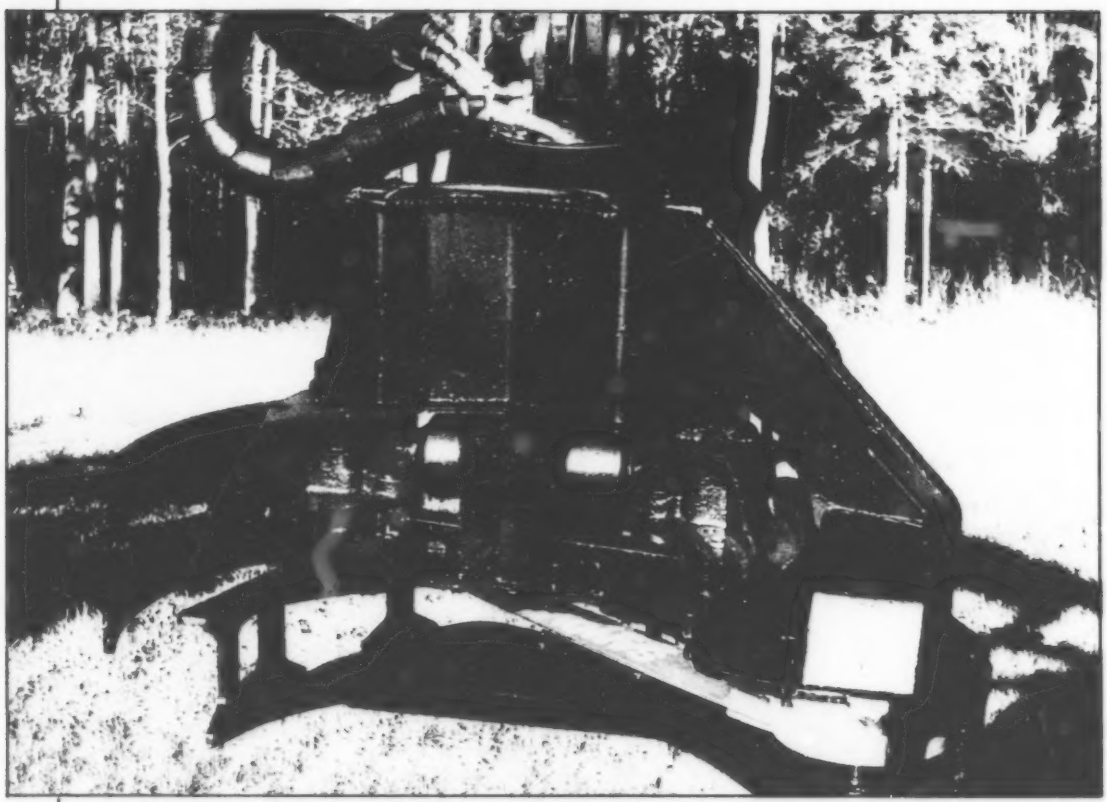
Hydraulics	
Shear	205 to 225 l/min (54 to 60 gpm.) 2 142 000 kg/m² (3000 psi.)
Tree Holder	105 to 120 l/min (28 to 32 gpm.) 1 428 000 kg/m² (2000 psi.)
Oscillation	24% for hillside cutting
Spherical Shear Blades	Capacity up to 508 mm (20 in.) tree diam.
Weight, kg (lb), BJ-505-4	1 546 (3,400)
BJ-505	1 364 (3,000)

MANUFACTURERS

Tanguay Industries Inc

2997 Watt St.,
Quebec, Que.,
G1X 3W1
TEL: (418) 658-1315
FAX: (418) 658-6747
TELEX: 051-31676

DENIS D-55 DIRECTIONAL FELLING HEAD



The Denis Model D-55 directional felling head, employing the chain saw for mechanized felling.

Le Groupe Equipements Denis Inc. designs, manufactures and markets equipment for the forestry industry, from silviculture and harvesting, to wood handling and processing operations. The Company is recognized as one of the largest manufacturers of delimbers in North America.

Particular Specifications

Width	98 cm (38 1/2 in.)
Height	96 cm (37 3/4 in.)
Depth	86 cm (34 in.)
Weight	360 kg (794 lb.)
Felling Diameter	55 cm (21 1/2 in.)
Working Pressure	160 bars (2320 psi)
Required Flow	160 l/min (42 1/4 gpm)
Chain	0.404

Operational Specifications

The Denis D-55 felling head directs the falling trees, and regroups them in such a way to facilitate subsequent skidding.

Because of its relatively small size, the head can work between trees with considerable ease. A rotor and two articulated axles ensure good positioning at the butt of the tree for felling. The D-55 is capable of felling at a rate of approximately 120-150 trees per hour.

The D-55 adapts to small excavators, 37.3kW(50hp) or more, working in a variety of situations: clearing operations, small wood lots, abundant snow, selective or partial cuts, uneven ground, and swampy terrain.

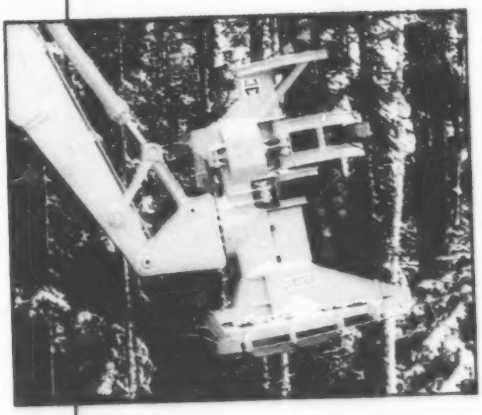
By locating the operator inside a protected cabin of the excavator, it greatly reduces accident risks, and health problems generally associated with the use of chain saws.

MANUFACTURER:

Le Groupe Equipements Denis Inc.,

5110 Beaudry Street, St-Hyacinthe, Que., J2S 8A2
TEL: (514) 773-5454
FAX: (514) 773-3203
TELEX: 05-83051

HARRICANA CIRCULAR SAW FELLING HEADS



Harricana CS5000 STA high speed saw felling head. Its unique operating principle of grabbing the tree immediately after the cut, avoids stress damage and butt shatter.

The Harricana circular saw felling heads are available in three models, CS5000 STA, CS5000 WL and CS6000 STA. The CS5000WL is specially designed for hydrostatic wheel loaders. The model CS6000 is a heavy duty felling head used for felling and handling large, tall trees.

The CS5000 model has been engineered and approved for use with all current excavators of 0.6/m³(¾yd³) capacity, and over.

Operational Specifications

All the steps relating to the felling of the tree are controlled by the push of one button. After positioning the head at the tree, the operator thumbs the button, and the tree is cut and held automatically. Automatic one button operation is achieved by synchronizing the action of the boom, stick, tool and grab arm cylinders.

Cutting speed is extremely fast, at the blade rotation of 1,200 rpm, a 50cm(20in) tree can be sawed in a little over one second.

The saw blade is fully protected above and below. The underside protective plate, prevents rocks or other objects from damaging the saw. The top plate protects it from falling debris, and supports cut trees clear of the saw blade. With full blade protection, deep snow around the base of a tree can be penetrated. The felling head can also be used for leverage, to help move the machine, if bogged down.

The blade can easily be replaced, and the teeth rebuilt. A spare blade is supplied with each head. A carbide tipped saw option is also available. The full kerf carbide tips can be individually replaced.

Particular Specifications

	Models		
	CS5000	CS5000WL	CS6000
Weight, kg (lb.)	2 137(4700)	2 335(5150)	3 039(6700)
Height,mm(in)	2 388(94)	2 400(94½)	2 743(108)
Base Width,mm(in)	1 727(68)	1 540(60¾)	1 708(672¼)
Diameter of Saw,mm(in)	1 391(54¾)	1 400(55)	1 450(58)
Thickness of Saw,mm(in)	12.7(½)	16(⅝)	15.7(⅝)
Kerf,mm(in)	47.6(1⅞)	51(2)	47.6(1⅞)
Side tilting,deg.	15	—	15

Mechanical Specifications

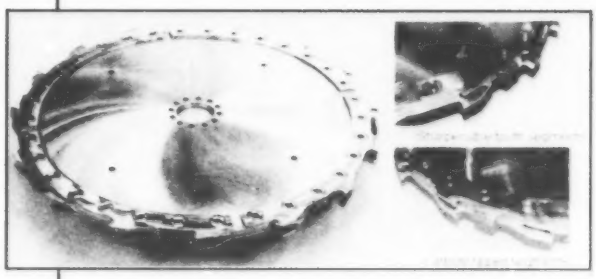
Cutting Capacity,mm(in)	508(20)	508(20) one pass	559(22)
711(28) Two pass			
Saw Motor Speed	1300 rpm max.	1350 rpm max.	1300 rpm max.
Size, cm³/Rev(in³/Rev)	110 to 186 (6.72-11.36)	Choice avail.accord. to carrying mach.	110-186 (6.72-11.36)

Comfort option: Two control joysticks with rocker switches to control all felling head movements.
Side tilt optional
Carbide inserts optional

Manufacturer:

Harricana Metal Inc.,
P.O. Box 550,
Amos, Que.
J9T 3A8
Tel.(819) 732-8381
Telex 057-46647
Delta, B.C.,
Tel.(604) 943-9692
Fax.(604) 943-1565

KOEHRING DISC SAW FELLING HEADS



A variety of felling head models to choose from, for a wide range of front-end and knuckle-boom carriers. The disc saw felling head with multi- tree clamp arms is shown here. The bolt-on-saw blade is used on the disc saw felling head.

Koehring Canada is a manufacturer of pulp mill, logging and construction machinery. Its line of tree harvesting machinery products is as follows: Tree harvesters, feller forwarders, feller skidders, feller bunchers, log load aligners, and log loading cranes, yarders.

Disc saw felling heads are available in 508 mm (20″), and 559 mm (22″) front and side cut models.

Mechanical Specifications

Disc Saw Drive: Fixed or variable displacement piston saw motor coupled directly to saw shaft.

Hydraulic Requirement: 25 gpm @ 4000 psi or 30 gpm @ 3000 to 3500 psi.

Clamp Arms: Multiple tree collecting arms standard. Common 102mm (4″) diameter cylinder for upper and lower sets of clamp arms (1 cylinder per set).

Hydraulic Requirement: 30 gpm @ 2500 to 3000 psi.

Optional Equipment: Wrist (side tilt) attachment. Compact overall width of 89 mm (3.5 in.), inserts between standard felling head and bolt on boom adapter. Powered by 127 mm (5 in.) diameter cylinder (optional 152 mm (6 in.)), provides ± 15 deg. side tilt of felling head.

Operational Specifications

The tree is grasped only after cutting, virtually eliminating butt damage caused by pre-severance clamping forces or machine movement during the cut. Grabbing the tree after cutting also results in reduced boom stresses common with shear-type felling heads.

Multiple tree accumulating arms allow several trees to be collected before bunching, a standard feature on all Koehring Waterous felling heads. Koehring Waterous disc saw felling heads are mounted on both wheel and track front-end vehicles, providing a compact, stable combination with low hydraulic flow requirements.

Particular Specifications

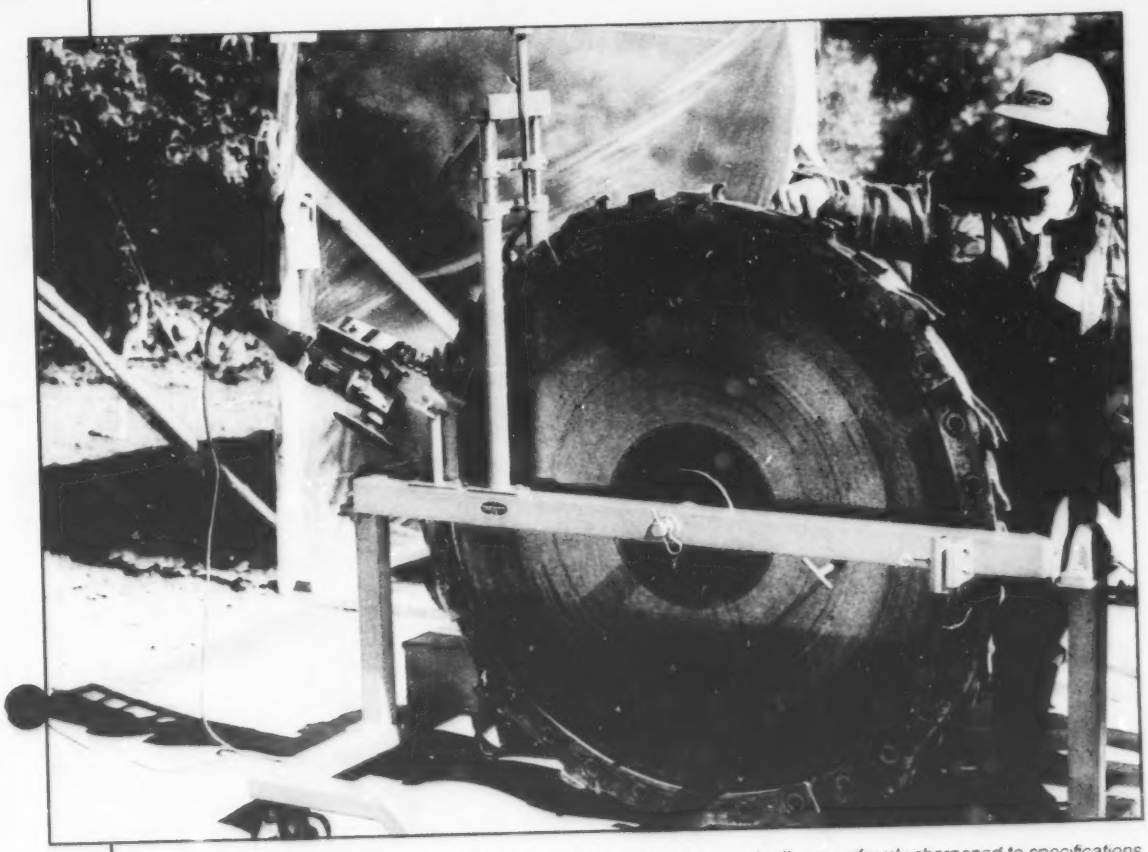
Disc Saw Felling Head	20 inch front end	20 inch front cut	20 inch side cut	22 inch front cut
Weight Less Boom Adapter or Mounting Lugs kg (lb.)	2130 (4700)	2130 (4700)	2130 (4700)	2490 (5500)
Typical Weight of Boom Adapter or Mounting Lugs kg (lb.)	180 (400)	135 (300)	135 (300)	135 (300)
Weight-Optional Wrist	N/A	270 (600)	270 (270)	270 (600)
O/A Height mm (in.)	2950 (116)	2950 (116)	3070 (121)	3650 (144)
O/A Width mm (in.)	1620 (64)	1620 (64)	1620 (64)	1620 (64)
Disc Saw Bade				
O/A Diameter mm (in.)	1400 (55)	1400 (55)	1400 (55)	1400 (55)
Speed RPM (avg.)	1100	1100	1100	1100
Kerf Thick. mm (in.)	57 (2.3)	57 (2.3)	57 (2.3)	57 (2.3)

MANUFACTURER:

Koehring Waterous, Div. of Timberjack Inc.,

P.O. Box 490, Market St. South,
Brantford, Ont. N3T 5P6
TEL: (519) 752-6571
FAX: (519) 752-3413
TELEX: 061-81117

ACRA CUT SAW SHARPENER



The Acra Cut Saw Sharpener assures that the Koehring bolt-on disc saw teeth are uniformly sharpened to specifications

The Acra Cut Sharpener is designed to sharpen the teeth on a disc saw, particularly as found on the Koehring bolt-on disc saw, which is popular on feller bunchers.

The Company also manufactures manual tree planters.

PRICE: $3,000 F.O.B. Plaster Rock, N.B. (1988), (subject to change)

Particular Specifications

Height mm (in.)	1524	(60)
Length mm (in.)	1727	(68)
Width mm (in.)	914	(36)
Total Weight kg (lb.)	136	(300)
Angle Grinder	Not Included	

Operational Specifications

The Acra Cut Saw Sharpener is designed to sharpen the teeth on the Koehring bolt-on disc saw blade, which is popular on many feller bunchers and feller-forwarders. Until now, there was no way to insure that every tooth was sharpened to a uniform height, and at the specified angles. This has meant that the disc saw blade was not operating at peak efficiency.

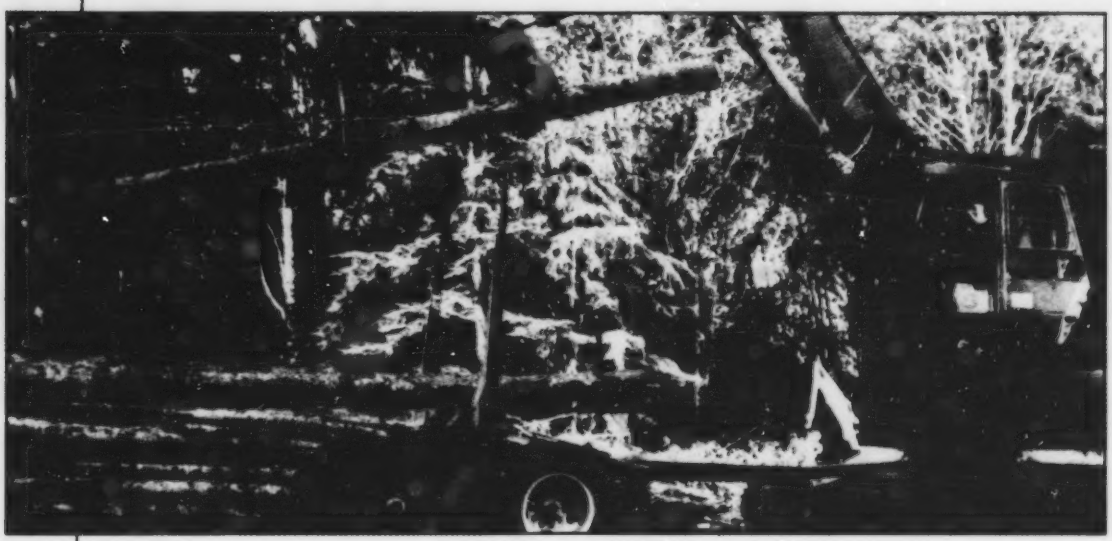
The Acra Cut Saw Sharpener is designed to be used with an angle grinder, that is mounted on a self-lubricating linear ball bearing slide assembly, that ensures accurate angles on the saw teeth. The saw is mounted on a swinging frame that enables the operator to swing the saw horizontally, either side, for hard facing build up of the segments prior to sharpening. The hardness of the saw cutting edge is increased from 360 to 430 brinell hardness by the preliminary hard facing. This results in up to 50 percent longer operating time, before sharpening is necessary again.

Because there is no need to remove the segments, build up hard facing and sharpening is reported to be possible in 2 to 4 hours, which means significant maintenance savings.

MANUFACTURER:

Victoria Machine Shop,
P.O. Box 509,Plaster Roc
N.B.,
E0J 1V0
TEL: (506) 356-2651

LOGGING FRONTS AND MACHINE GUARD GROUPS



Logging fronts, and machine guard groups, shown mounted on the Hitachi Model UH 123 Loader This includes cab riser for max visibility, side panels for extra protection from trees, underguarding, swivel guard, track and roller guards, walkways, cab guard, boom, stick and heeling rack, counterweighting

Balderson manufactures various combinations of cab risers, guarding groups, special booms and sticks, and various log handling grapples, which convert excavators into log loaders, or feller bunchers. Each package is custom designed to fill a particular end user situation. The packages are designed and installed on the machine by Balderson, at their facilities in Edmonton, Alta.

PRICE: Package prices vary; consult manufacturer. Deliveries range up to 20 weeks.

Particular Specification

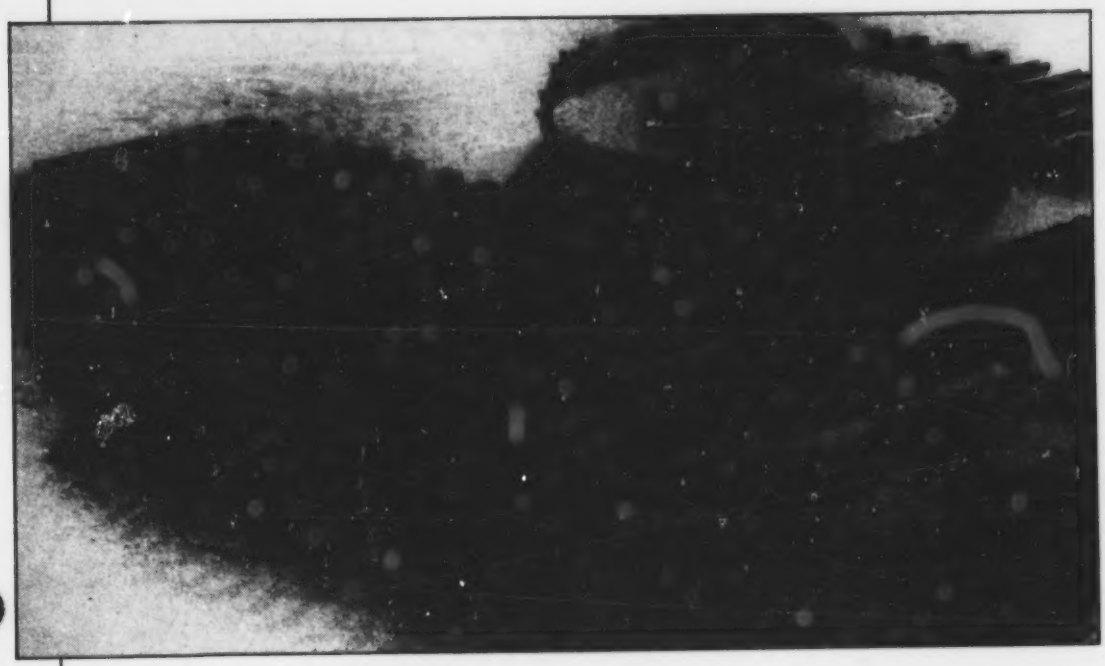
The custom designed, extra protection logging front conversions, provide comfort and safety while maximizing the total machine investment in the form of better productivity. The logging fronts are built from the ground up to keep the operator and equipment protected.

MANUFACTURER:

Balderson Canada Ltd.,

6400-30 St.,
Edmonton, Alta.
T6P 1J6
TEL: (403) 469-9185
FAX: (403) 469-9256

WELDCO HEAVY DUTY WOODLAND UNDERCARRIAGE



Weldco Heavy-Duty Woodland Undercarriage

The Company are specialists in the design and manufacture of machines and attachments for the forest industry with a wide range of forest products.

The undercarriage size produced is equivalent to the D6, or old D7.

Particular Specifications

Overall Length, m (ft)	4.3 (14.25)
Overall Width (24 in. pads) m (ft)	3.0 (9.88)
Height (Top to bearing flange) m (ft)	1.1 (3.62)
Underbody Clearance, cm (in.)	45.7 (18)
Undercarriage Weight (Depends on pads chosen) kg (lb.)	12,247 (27,000)

Mechanical Specifications

Drive System	Linde GK-60V with auto brakes, 2-speed motor & counterbalance valve
Drawbar Pull, kg (lb)	24948-33113 (55,000-73,000)
Bottom Rollers	8 per side
Two-Speed Travel, kmph (mph)	2.4-4.5(1.5-2.8)
Gradeability, %	70
Optional:	Four-way tilt, 10 degrees Two-way tilt fore and aft, 10 deg. Two-way tilt side to side, 10 deg.

Operational Specifications

Made from high-tensile steel, with motors and planetary drive units embedded inside the track frame.

Slider type guides are used, instead of idlers, which can freeze or break. The floatation chain guide functions to support the pads, and guide the chain, thus adding to the service life of the track group.

There is direct access to the service locations for simplified maintenance.

MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts St.
Burnaby, B.C., V5G 4E1
TEL: (604) 294-2222
FAX : (604) 294-1292
TELEX: 04-55103

LOGGING AND TRANSPORT: OFF-ROAD
LOGGING AND TRANSPORT
Off-Road Transport

Page

Small-Scale Operations 99

Manual Transport, Mechanical Aids
Montreal Precision Crafting Port-A-Log Sulky 100

Mechanical, Walk-Along-Transporters
Ezi-Hauli Mini Forwarder 101

Tractors, Skidders and Forwarders
Dion F-4 Flexible Track Forwarder 102
Raidtrac 1800 Flexible Track Forwarder 103

Cable Systems
P.E.I. Island Logger 104
Capitale Teletransporteur 105

Complementary Equipment
JMS All-Terrain Vehicle Trailer 106
New Brunswick ATC Trailer 107
New Brunswick Logging Arch 108

Commercial Operations 109

Wheeled Skidders, Chocker and Grapple Types
Caterpillar Wheeled Skidders 111
Ranger Skidders, Cable 112
Ranger Skidders, Grapple 113
Timberjack Skidders, Cable 114
Timberjack Skidders, Grapple 115

Tracked Skidders, Chocker and Grapple Types
Balderson Steep Slope Grapple Skidder 116
K.M.C. High Speed Steel Tracked Skidders, Chocker and Grapple 117

Forwarders
Timberjack 230 Forwarder 118
Crabe Forwarder 119
Canron Forwarder 120

Skidding Attachments, Grapples
Balderson-Fleco A-Frame Grapple 121
Denis Skidder Blade Grapple 122
Hydrawrap Grapple 123
Johnson Skidding Grapple 124
Weldco Skidder Grapples 125

Skidding Attachments, Arches, Fairleads and Winches
Balderson Logging Arch and Fenders 126
Lantec Hydraulic Winches 127
Opsal Fairleads 128
Pullmaster Planetary Winches 129
Weldco-Beales Integral Arches, Fairleads 130

Skidding Attachments, R.O.P.S. Canopies and Cabs
Jackson Protective Structures 131
Weldco R.O.P.S. Canopies and Cabs 132

Complementary Skidding Equipment
Bouchook End Bell 133
Comor wire Rope and Rigging 134
Opsal Cables, Blocks and Sheaves 135
Quebec Traction Forestry Tire Chains 136

Cable, Yarders
Cypress Yarder 137
Madill Double Main Yarder 138
Madill Type 171 Mobile Yarder 139
Madill Interlock Swing Yarder 140
Skylead M35 Yarder 141

Cable, Grapples
Johnson Chocker Grapples 142
Johnson Cable Log Grapples 143

Cable, Carriages
Johnson Slack Pulling Carriage 144

Cable, Complementary Equipment
Johnson Electronic Chocker System 145
Talkie Tooter Grapple Radiowhistle System 146
Talkie Tooter VHF Radio-whistle System 147

LOGGING AND TRANSPORT: OFF-ROAD, SMALL-SCALE OPERATIONS

M.P.C. PORT-A-LOG SULKY

Standard Port-A-Log with wheels, also available with skis and snowmobile towing bar.

Montreal Precision Crafting manufactures the Port-A-Log Model 500, standard with wheels, and optional with skis.

Particular Specifications

The Port-A-Log uses the lever principle, permitting one man to lift loads of 225 kg (500 lb.) easily. Loads of 450 kg (1000 lb.) have been lifted. The Port-A-Log will lift anything that fits between its wheels, i.e. hydraulic cylinders, crates, logs, poles, timbers, sewer pipes, I beams. It can also be used to remove manhole covers and carry tar buckets.

In the winter time, the Port-A-Log can be quickly converted into a sled sulky. There is also a snowmobile hitch attachment available, for effortless towing of even the heaviest loads. Removing the wheels and installing the Port-A-Log skis takes only a few minutes using a socket wrench.

A quick snap hitch for use with garden tractors, A.T.V.'s etc. is available.

The sulky is particularly suitable for harvesting small volumes of timber with a minimal investment. Its rugged construction, with few moving parts, allow it to last for years. It can be easily transported in a car.

MANUFACTURER:

Montreal Precision Crafting Ltd.,

797 Lajoie,
Dorval, Que., H9P 1G7
TEL: (514) 636-0825 FAX: (514) 631-0996

EZI-HAUL 1 MINI-FORWARDER

The Ezi-Haul 1 Mini-Forwarder suited for skidding and hauling applications in forestry, fire fighting, utilities, or as a recreational vehicle for the sportsman.

Physical Specifications

Length: mm (in.)	1778 (70)
Width: mm (in.)	1219 (48)
Height: mm (in.)	1295 (51)
Weight: kg (lb.)	276 (610)

Undercarriage: 2 moulded rubber tracks: 3149X419 (124X16.5) mm (in.)

Operational Specifications

The Ezi-Haul mini-forwarder has a towing capacity of 1588 kg (3500) lb, or it can support and carry a 544 kg (1200) lb load. The low track pressures, make it particularly applicable to environmentally sensitive sites.

The forwarder can be disassembled into two units for easier transportation into remote areas using small aircraft.

In operation, the operator walks in front of the vehicle in the forward or reverse directions. The forwarder is manoeuvered by simply moving the drawbar handle to the left or to the right for steering, and moving the upper handle front or back for forward, or reverse motion.

Mechanical Specifications

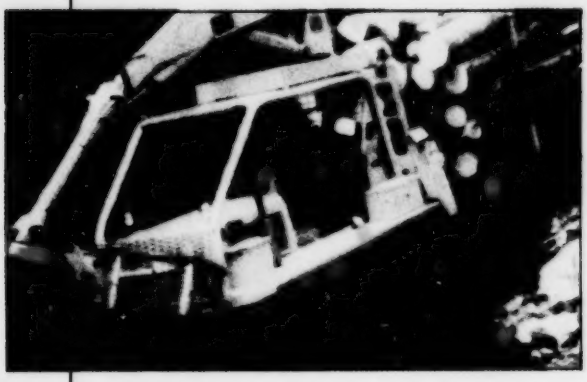
Engine: kW (hp)	6(8) Honda
Drive:	2 Sundstrand variable displacement axil piston pumps, and 2 Char-Lynn H-Series hydraulic motors.
Steering:	Infinitely variable, full pivot turns
Undercarriage:	Bogie wheel suspension
Speed: km/hr (mph)	0 to 6.6 (0-4.2)
Optional Attachments:	Winch-manual or hydraulic
Other Options:	Pulpwood bunk—for 1.2 m (4) ft pulpwood
	Load box—capacity 544 (1200) kg (lb.)
	Wood splitter—hydraulic
	Trailer—rubber tires or sleigh runners
	Honda, Wisconsin, Briggs and Stratton engines

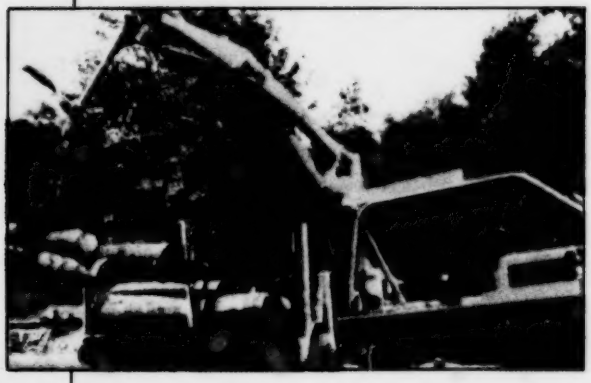
MANUFACTURER:

Ezi-Haul Inc.

1530 Dawson Road
Thunder Bay, Ontario
P7B 5E3
TEL: (807) 767-4285

DION F-4 FLEXIBLE TRACK FORWARDER





The F4-DION, articulated, flexible tracked forwarder, loader equipped, with full reversing opposite seats for easier loading and driving.

The Dion Model F4 flex-track forwarder; available with forwarder mounted, hydraulic loader, with bunks in the pulpwood/log configuration, or with hydraulic dumper for loose material transport.

Particular Specifications

Length mm (in.)	8000	(315)
Width mm (in.)	1702	(67)
Height mm (in.)	1980	(78)
Ground Clearance mm (in.)	305	(12)
Weight kg (lb.) loaded	4218	(19,000)
Track Area cm^2 (in^2)	39 490	(6120)
Ground Pressure, empty	0.21	(3)
kg/cm^2 (psi) loaded	0.45	(6.4)

Mechanical Specifications

Engine	F4L-912 Deutz Diesel 60kW(80 HP) @ 2700 RPM
Transmission	4-speed

Operational Specifications

Load Capacity	7.2 m^3 (2 cords), or 4536 kg (10,000 lb.)
Climbing Ability	65% to 85% slope
Side Hill Ability	40% slope
Speed @ 2700 RPM	
Low	3.4 km/hr (2.1 mph)
High (4th)	22.4 km/hr (13.9 mph)
Optional loader capacity	1.360 kg (3,000 lb.)
Grapple capacity	0.45 m^3 (1/8 yd^3)
Hyd. dumper* capacity	2.3 m^3 (3 yd^3)

*The dumper must be bought installed on the adapted vehicle.

The F4 forwarder can carry either pulpwood or logs to a maximum of 4.9 m (16 ft.) in length. It is only 1702 mm (67 in.) wide, and particularly suited for use in selection cutting. With full power on its four tracks, and low ground pressures, it can be applied on both rough and swampy ground.

MANUFACTURER:

A. Vohl & Fils Ltee.

P.O. Box 28
Portneuf County, Que.
G0A 4B0
TEL: (418) 268-3527

RAIDTRAC 1800 LIGHT TRACTOR

Raidtrac model 1800 flexable track forwarder, particularly suited to low ground pressure applications.

The Raidtrac is available with two tracks: 46cm(18in) and 76cm (30in) widths

PRICE: Approx. $ 20,000 FOB Drummondville, Que., (1988). 1 month delivery.

Mechanical Specifications

Engine	Citroen M-28, 26 kW (35HP) @ 5750 RPM
Gearbox	4 speed forward all synchronized, 1 reverse
Final Drive	Heavy duty roller chains 3/4 pitch
Track Drive	High quality rubber sprockets
Suspension	16 aluminum wheels with solid tires mounted in double tandems

Optional Equipment

Also available with 914 mm (36 in.) wide tracks, made with four endless rubber straps. Available with electric front or rear winch, rear utility box, track trailer 2743 mm (9ft.) long, short or long winter cab, rear double seat and hour meter.

Operational Specifications

This is a light forwarder with wide tracks, exerting low ground pressures. Ground surface contact with 457 mm (18 in.) track at 152mm (6 in.) depth is 19045 cm^2 (2952 sq.in.) with a ground pressure of 51 g/cm^2 (0.72 psi). The ground surface contact with 914 mm (36 in.) track at 152 mm (6 in.) depth is 38090 cm^2 (5904 psi) with a ground pressure of 30 g/cm^2 (0.42 psi).

The approximate maximum speed is 30 km/hr (18 mph).

Physical Specifications

Overall Length mm (in.)	2550	(100)
Maximum Width mm (in.)	1520	(60)
Height mm (in.)	1950	(77)
Ground Clearance mm (in.)	360	(14)
Weight kg (lb.)	975	(2150) (Standard 457 mm (18 in.) track)
	1135	(2500) *

* With optional 760 mm (36in.) track.

MANUFACTURER:

Raidtrac Vehicules Inc.,
C.P. 223, 2200 Louis Felix
Drummondville, Que.
J2B 6V7
TEL: (819) 477-0262

ISLAND LOGGER

Island Logger Cable System which can be used in running

The P.E.I. Department of Energy and Forestry designed and built the prototype Island Logger cable system, and under its extension services provided through the Canada-P.E.I. Technology Transfer Program, makes the construction plans to manufacture the cable equipment available on request.

Price: Approx $ 10,000.00 F.O.B. Montague, P.E.I., 1988, utilizing used parts, when available locally.

Physical specifications

Trailer Frame : 1.5 X 2.1 m (5 X 7 ft.) , 12.7 cm channel iron
Tires : 8 X 14.5 on single trailer
Tower : 1cm thick, 12.7 X 12.7 steel , 3.7 m (12 ft) long
Overall Height: 4.3 m (14 ft)

Mechanical Specifications

	Cable Diam.	Drum Cap.	Avg. Speed
Haulback:	0.95cm (3/8″)	366m (1200′)	244/305m/min (800/1000ft.min)
Mainline:	1.11cm (7/16″)	183m (600)	152/213m/min (500/700ft.min)

Power Requirements : Minimum 26 Kw (35 HP) prime mover
Drum Brakes: Disc type

Operational Specifications

Primarily designed and built by the staff of the P.E.I. Department of Energy and Forestry to extract wood from environmentally sensitive areas. Tests show it also performs well on steep slopes and rough ground.
Machine design makes optimum use of locally available parts.
Average set-up time is 25 min., with an average reported production of 5.4 to 7.2 m^3 (1.5 to 2 cords) per hour. A tractor of some 37kW (50 hp) has given the best results when serving as the power source. A light duty truck can be used for towing the yarder on the road to site.

MANUFACTURER:

Units are fabricated by user or by local welding/machine shops. To obtain the construction plans to build a copy of the equipment contact:

Prince Edward Island Department of Energy and Forestry
P.O. Box 2000
Charlottetown, P.E.I.
C1A 7N8
Mr.Douglas Mac Master, Fabricator
(902) 838-3465

CAPITAL TELETRANSPORTEUR

Capital Teletransporteur, TL3000, cable extraction system especially suited to steep and inaccessible terrain, environmentally sensitive sites, and where protection of the advance regeneration during harvest, is prescribed.

Two models of the Capital Teletransporteur cable systems are available: TL 2000 and TL 3000.
The Company also manufactures electric winches: Models CD300 (300 kg), CD500 (500 kg), CD700 (700 kg), EC1000 (1000 kg), EC1350 (1350 kg). Hydraulic winches: Models 304 (6800 kg), 306 (7000 kg).

Particular Specifications

Height, m (ft)	1.20 (3.9)
Length, m (ft)	1.50 (4.9)
Width, m (ft)	0.8 (2.6)
Weight, kg (lb.)	1000 (2205)

Mechanical Specifications

Carriage Speed, m/min (fpm)	61 (200)
Max Extraction Distance, m (ft)	914 (3000)
Operating Slope, degrees	60
Main Cable, Min. Diameter, cm (in)	1.9 (3/4)
Capacity of Winch, kg (lb.)	2722 (6,000)
Winch Speed, m/min. (fpm)	31 (100)

Radio Control, Double function
Command Teletransporteur
Communications, 2-operators
Engine, Gas or Diesel

Operational Specifications

Of the two models available, the TL 2000, with a capacity of 2000 kg at 40 m/min., is powered by a 18.5 kW (25hp) engine, operating some 300m of principal cable of 19mm diameter. The TL 300, the higher capacity model, delivers 3000 kg at 60 m/min, is powered by a 26 kW (35hp) diesel engine, operating 19mm cable over 1000m.

MANUFACTURER:

Treuil de la Capitale Inc.
34 Boul. Johnny Parent
Loretteville, Que.,
G2B 1T3
TEL: (418) 842-8641
FAX: (418) 694-9679
TELEX: 051-3786

J M S ALL-TERRAIN VEHICLE TRAILER

The J M S. tandem dumping trailer, used to take an ATV, on the road to the forest, and in less than a minute, converts to a forest trailer for wood transport.

The JMS Trailer transforms quickly from road, all terrain, vehicle transporter, to wood transporting forest trailer, with the addition of a steel loading cart, or side stakes.

Particular Specifications

Dimensions	114 cm (45″) × 1.9 m (6′4″)
Wheel Base	109 cm (43″)
Charging Capacity	775 kg (1500 lb.)
Total Weight	150 kg (320 lb.)
Road Tires	570-8 tandem wheels
Wagon Configuration	Dimensions vary from 1.2 m (4 ft.) to 2.4 m (8 ft.) long and 109 cm (43 in.) wide

Operational Specifications

The trailer is adapted for quick unloading by the tilt frame feature. Tandem wheels permit crossing of obstacles, and lessen pulling resistance. The trailer can be utilized by ATVs, autos or small tractors.

MANUFACTURER:

La Forge J.M.S. Inc.,

240 Route 285,
L'Islet Sud., Que.
G0R 2C0
TEL: (418) 247-5510

ATC UTILITY TRAILER

ATC Trailer with integrally mounted wood splitter, which can be built by the user to specifications provided under the Canada-New Brunswick Technology Transfer Program

The Forest Extension Service, Department of Natural Resources, makes the construction plans, to manufacture the ATC utility trailer as well as a variety of optional accessories, available on request. This is an information service aimed at the small woodlot operators to meet their operating needs, provided through the Canada-New Brunswick Technology Transfer Program.

PRICE: approximately(1988), built by woodlot operator:

Basic Trailer, material cost, $295.00
Estim. time to build: 22 hours
Hydraulic Tank, material cost, $135.00
Estim. time to build: 10 hours
Motor/Hydraulic Pump, material cost,$760.00
Estim. time to build: 8 hours
Valve and Hoses, material cost, $350.00
Estim. time to build: 4 hours
Wood Splitter, material cost, $630.00
Estimated time to build: 28 hours

Operational Specifications

ATC* bikes equipped with a low gear range are preferable for use with the ATC trailer. Most ATC's in the 200cc or larger category are suitably adapted for on or off-road use of the trailer. Mobility may be limited on soft ground, and on sites with pronounced pits and mounds.

The winch can normally be operated with its 30.5m(100ft) of cable requiring trail layout from 30.5m to 61.0m(100 to 200 ft).

The equipment is designed with the small woodlot owner in mind, with low cost, multiple use, and relative ease of operation and maintenance, as principal considerations.

* the term ATC refers here to any three or four wheeled all-terrain motorcycles.

Particular Specifications

Dual bogie wheels	30.5 cm (12 in.) wheel barrow tires
Powered By:	3.7 kW (5 hp) Honda engine, or similar
Use:	Forwarding Tree Sections, and Splitting Firewood
Capacity:	1.2 m^3 (0.33 cords) or 454 kg (1000 lb.)
Optional Trailer Accessories:	
	Wood splitter
	Pesticide sprayer
	Skidding/yarding winch
	Christmas Tree Baler

MANUFACTURER:

Units are fabricated by user or by local welding/machine shops. To obtain construction plans to build a copy of the equipment contact:

Province of New Brunswick
Department of Natural Resources
Forest Extension Service Branch
Hugh John Flemming Forestry Centre
R.R. #10, Fredericton, N.B.
E3B 6H6
TEL: (506) 453-3711

LOGGING ARCH

Log Arch which can be built to specifications with the small woodlot owner in mind.

The Forest Extension Service, Department of Natural Resources, makes the construction plans, to manufacture the logging arch available on request. This is an information service aimed at the small woodlot operators to meet their operating needs, through the Canada-New Brunswick Technology Transfer Program

Particular Specifications

Powered by:	ATV bike, 200 cc or larger are suitable
Use:	Skidding Tree Sections
Capacity:	0.5 m^3 (18 cu.ft.)
Winch Capacity:	453 kg (1000 lb.)

Trailer coupler for 1 7/8 in dia. ball, 907 kg (2000 lb.) capacity
ATV hubs, Tires and Axles
Width: 99.1 cm (39 in.)
Material: HSS 1 1/2 in x 1 1/2 in X 1/8 in

MANUFACTURER:

Units are fabricated by users or local welding/machine shops. To obtain construction plans to build a copy of the equipment contact:

Province of New Brunswick
Department of Natural Resources
Forest Extension Service Branch
Hugh John Flemming Forestry Centre
R.R. #10, Fredericton, N.B.
E3B 6H6
TEL: (506) 453-3711

LOGGING AND TRANSPORT: COMMERCIAL OPERATIONS

CATERPILLAR WHEELED SKIDDERS

Caterpillar offers a complete line of production machines for the woods and mills: road construction and reforestation, cable and grapple skidding, felling and bunching, delimbing and bucking, loading and unloading, chip and finished product handling. The team advantage is emphasized, matching machines for cost-efficient production.

The following wheeled skidders are offered: Models 508 (cable & grapple versions), 518 (cable & grapple versions), and 528 (cable & grapple versions).

Operational Specifications

The Cat 508 wheeled skidder,72kW(95),is best utilized when the operation doesn't require the added size and power of the larger 518 and 528 models. Available in cable and grapple models to suit the logging system. The grapple model is teamed-up with a feller buncher for optimum production.

The spring-loaded winch control lever automatically returns to "brake on" during frequent changes. Drag adjustment knob prevents winch drum over- spinning.

Cat grapple features load sensing hydraulics that control the tongs, A-frame boom and swiveling to keep logs in the grapple during transport.

For all Cat skidders, CAT Plus services include preventive maintenance programs, parts and components exchange, computerized parts location and other services to meet operators needs.

Particular Specifications

	Model 508	Model 518	Model 528
Tires, mm (in.) (standard)	23.1x26	18.4x34	24.5x32
Tread, mm (in.)	2100 (82.7)	2070 (81.5)	2310 (91)
Width over tires mm (in.)	2687 (106)	2510 (95)	2920 (115)
Clearance at hitch pin, mm (in.)	521 (20.5)	610 (24)	700 (27.5)
Operating Wt, kg (lb)	7770 to 9490 (17,130 to 20,920)	9662 (21,300)	12,470 (27,500)
Winch,	Cat 508	Gearmatic 119	Cat 528
Line pull, kN (lb)	121 (27,225)	14520 (32,000)	18140 (40,000)
Line speed, m/min (fpm)	61 (200)	71 (234)	70 (229)
Capacity cable, m (ft)			
13mm (1/2 in.)	75 (246)		
16mm (5/8 in.)	49 (161)	72 (235)	
19mm (3/4 in.)	34.5 (131)		53 (175)
Grapple Opening cm (in.)	193 (76)	varies with model selected	

Cat 72kW(95hp) grapple, wheeled skidder, that shares the performance of the larger Cat skidder machines.

Mechanical Specifications

	Model 508	Model 518	Model 528
Engine, kW (hp)	Cat 3204 diesel	Cat 3304 diesel	Cat 3306 Turbo d.
(flywheel @2400RPM)	72 (95)	89 (120)	130 (175)
Transmission	Power shift with torq. conv.	Power shift with torq. conv.	Power shift with torq.c.
Max Drawbar pull at stall, kN (lb)	83.7 18,833)		
Front axle oscil.	30 deg.: ± 15 deg.	28 deg.: ± 14 deg.	28 deg.: ± 14 deg.
Hyd. System, output l/min (gpm)	66 (25.2)	96 (25.2)	117 (31)
Axles	No spin dif., f/r	No spin dif., f/r	No spin dif, f/r
Brakes	Caliper disc	Driv.disc + F.W.disc	Calip. disc
Standard		ROPS canopy	ROPS canopy
Optional, may vary. Consult dealer.			
Optional (main items)	Axle, float. tires Cab, ROPS incl. doors Counterweight Fire Sup. Syst. Lighting Syst. Tires, 66x43x25, 10PR Grapple (req. opt. axle) A frame Grapple	H.D. Brake Syst. Fairlead f.rol. Lighting Syst. ROPS cab (screen/glazed) Tires (req. opt. axle)	Lighting Sys Tires Grapple

MANUFACTURER:

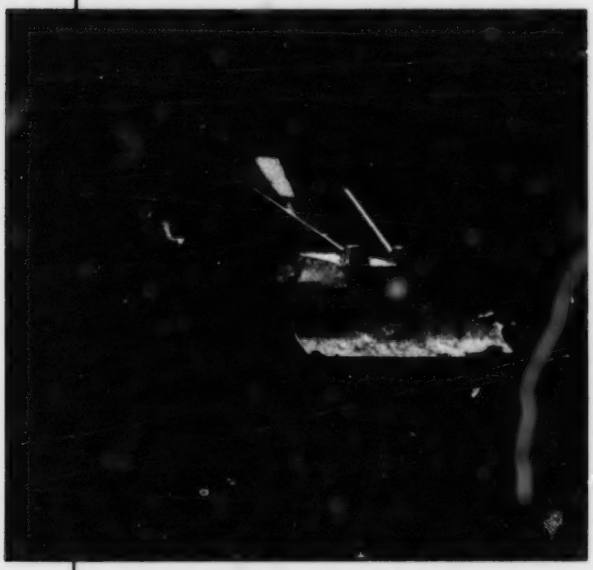
CATERPILLAR OF CANADA LTD.

100 Sandelwood Parkway W.,
Brampton, Ont.,
L6V 3Y4
TEL: (416) 846-3222
FAX: (416) 846-5725
TELEX: 06-97725

RANGER SKIDDERS

The F-Series Ranger Skidders from VME, are available in cable and grapple configurations, in three models; F665, F666, F667.

The Ranger line is ruggedly built to withstand a world of abuse from adverse terrain.



Ranger F666 Cable Skidder with high floatation tire option. VME makes available, a wide range of tire options, to suit particular needs.

Optional Equpment:

Cab, Canopy and Related Options: OPS cab enclosed for winter operations. Standard OPS canopy includes doors, mesh, front screen mesh. General optional equipment: engine air pre-cleaner, dual battery kit, engine block heater, cable cutter, suction fan kit, optional fairlead (8″ higher, 4″ further back from rear axle includes 4th roller), work light kit, fairlead fourth roller, secondary steering, steering wheel, hand throttle, tow hook, wheel wrench, wheel wrench handle.

Operational Specifications

The ROPS/FOPS Ranger canopy, heavy screens, brush guards and canopy sweeps offer good operator protection. A shielded rear discharge muffler directs heat and noise away from the operator.

The wide front blade can handle the rigors of pushing and decking in the woods, and at the landing.

The rugged Ranger frame is solid steel plate. Keel shaped belly guards, provide full length protection for drive train components.

The three speed powershift transmission, with on-the-go shifting capability between speed ranges, has directional clutch modulation, providing smooth, full power, on-the-go forward, and reverse shifts, without braking.

The torque converter drives the winch, and regulates line pull, and line speed, to match load and operating conditions.

The planetary axles feature durable, single piece, cast steel housings, bolt-on spindle for maximum strength and ease of service. Front and rear no spin differentials keep the machines moving through mud, snow and adverse terrain.

Particular Specifications

Model: Cable Skidder	F665	F666	F667
Height mm (in)	2946 (116	3162 (125)	3162 (125)
Overall Length mm (in)	5588 (220)	6248 (246)	6248 (246)
Blade Width mm (in)	2134 (84)	2134 (84)	2134 (84)
Track, Rear Width mm (in)	2127 (84	2182 (86)	2182 (86)
Width Over Tires mm (in)	2636 (104)	2817 (111)	2817 (111)
Ground Clearance mm (in)	523 (21)	450 (18)	450 (18)
Tire Size (standard)	18.4-34	23.1-26	23.1-26
Total Weight kg (lb)	7384 (16280)	9847 (21710)	9970 (21980)

Mechanical Specifications

Model	F665	F666	F667
Engine (Cummins turbo)	4BTA 3.9	6BT 5.9	6BT 5.9
Flywheel kW (hp)	77 (104)	98 (132)	118 (159)
Torque Converter	2.29:1	2.728:1	2.728:1
Winch (Clark)	WD-200	WD-310	WD-410
kN (lbf)	100 (22400)	130 (29200)	148 (33400)
at m/min (fpm)	at 90 (294)	at 122 (400)	at 92 (303)
Drum Capacity mm-m	15.7-84.1	19.1-65.8	19.1-65.8
(in-ft)	(0.62-276	(0.75-216)	(0.75-216)
Tires (optional)	Flotation tires are also available; 24.5-32, 30.5L-32 require heavy duty axles.		
Transmission	3 speed, full reversing Clark powershift with modulation		

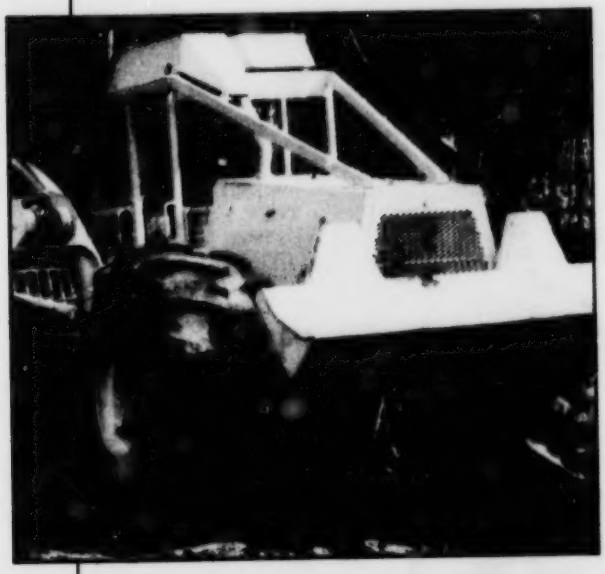
MANUFACTURER:

VME Equipment of Canada (St. Thomas Plant),

25 Michigan Blvd., St. Thomas, Ont., N5P 1H2 TEL: (519) 631-9420 FAX: (519) 631-9420 TELEX: 064-73550

RANGER GRAPPLE SKIDDERS

The F-Series Ranger skidders from VME, are available in cable and grapple configurations, in three models: F665, F666, F667. The grapple skidders equipped with Ranger 178 cm (70 in.) swing-up grapple, and the 267 cm (105 in.) single cylinder grapple. The grapple skidders can be converted to cable skidders, by using the standard three roller fairlead, with the grapple arch.



Ranger F666 with A Frame, Swing-Up Grapple (above), with 1778mm grapple head, capable of continuous bi-directional rotation.

Ranger 666 with Parallellogram, 360 deg. grapple (below), with 2667mm grapple head.

Particular Specifications

Model:Grapple Skidder	F665	F666	F667
Total Weight kg (lb.)	8800 (19401)	10269 (22640)	1894 (26220)

Optional Equipment:

The 267cm (105″) grapple utilizes a single hydraulic cylinder and synchronizing bar to control line movement for effective log bunching action. An accumulator maintains hydraulic pressure in the grapple circuit. High clamping forces combined with the accumulator, aid in preventing load loss while skidding (optional on F666, standard on F667).

Ranger 178cm (70″) swing-up grapple on F665, F666.

Operational Specifications

The F665 and F666 can convert easily from a grapple skidder to a cable skidder. The operator merely swings and pins the grapple up and out of the way. The arch has built-in fairlead rollers, and the WD-200 and WD-310 are ready for efficient cable skidding.

F665, F666 Grapple—Clark/Ranger with 1778mm (70 in.) grapple head capable of continuous, bi-directional rotation.

Grapple Head: Reversible hydraulic motor with chain reducer and friction disc snubber; head is capable of continuous, bi-directional rotation.

Arch: Tubular construction; mounted on rear frame with 50.8mm (2in.) pins in spherical bushings. Integral fairlead with two 101.6mm (4 in.) diameter side rollers and a 215.9mm (8.5 in.) diameter main roller.

F666 (optional), F667 Grapple—Clark/Ranger with 2667mm (105 in.) grapple with 360 deg. rotating hydraulic motor driven head; reversible.

Grapple Head: Bi-directional hydraulic motor with chain reducers and friction disc snubbers; 360 deg. continuous rotation.

Arch: Tubular construction; mounted on rear frame with 51mm (2 in.) dia. pins in spherical bushings, with built-in fairlead; main roller and two guide rollers.

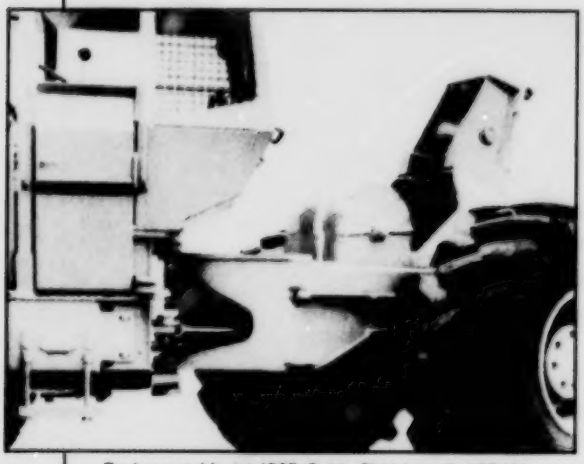
Mechanical Specifications

Model: Grapple Skidder	F665	F666	F667
Tires: Standard	23.1-26 10PR	23.1-26, 10PR	24.5-32, 12PR
Optional	18.4-34, 18.4-26 28L-26, 67-34-26 24.5-32 Flotation tires also available	24.5-32*, 28L-26 30.5L-32* *Requires HD axle	28L-26, 30.5L-32 Flotation tires also available

MANUFACTURER:

VME Equipment of Canada (St. Thomas Plant),
25 Michigan Blvd.,
St. Thomas, Ont.,
N5P 1H2
TEL: (519) 631-9420
FAX: (519 631-9420
TELEX: 064-73550

TIMBERJACK CABLE SKIDDERS



Timberjack Model 450B Cable Skidder with 177 kN (40,000 lb.) winch, powered by an aftercooled 130 kW (174 HP) Cummins turbo engine. This is one of seven Timberjack cable skidder models.

Timberjack is a recognized name in the skidder industry, as well in the design and manufacture of mechanical logging equipment. Timberjack produces: cable skidders, grapple skidders, clambunk skidders, log forwarders, mobile delimbers, feller bunchers and mining vehicles. Cable skidders are available in models 225A, 230A, 240A, 380B, 450B, 480B and 550B.

Operational Specifications

Four wheel drive, articulated, rubber-tired choker skidders for skidding trees/logs off-road from the stump area, over adverse terrain, to the landing-where further processing takes place.

A Lexan weather enclosure is optional, as well as extra heavy duty axles. The latter is particularly important, if wide floatation tires are being utilized.

Particular Specifications

	Smallest	Largest
Model	225A	550B
Overall Length mm (in.)	5690 (224)	6578 (259)
Maximum Width mm (in.)	2388 (94)	3238 (259)
Height mm (in.)	2718 (107)	3124 (123)
Gound Clearance mm (in.)	533 (21)	610 (24)
Weight kg (lb.)	6736 (14,850)	13658 (30,110)

Mechanical Specifications

	Smallest	Largest
Model	225A	550B
Engine	GM 3-53N	GM 6V-53N
	69 kW (92 HP) @ 1800 RPM	150 kW (201 HP) @ 1500 RPM
	GM naturally aspirated and turbo, Cummins turbo and Deutz naturally aspirated, depending on model.	
Starting	Direct electric	
Air Cleaner	Dry type	
Power Train	Four wheel drive with mechanical and powershift transmission, depending on model.	
Steering	Hydraulic articulation	
Winch	Model T20	Model T50
Line Pull	Bare Drum 89 kN (20,000 lb.)	Bare Drum 222 kN (50,000 lb.)

MANUFACTURER:

Timberjack Inc.,

925 Devonshire Ave.,
P.O. Box 160,
Woodstock,Ont., N4S 7X1
TEL:(519) 537-6271
FAX: (519) 539-4750
TELEX: 064-74118

TIMBERJACK GRAPPLE SKIDDERS

Timberjack Model 380B single-arch Grapple Skidder powered by a 110 kW (148) Turbo Cummins engine.

Timberjack is a recognized name in the skidder industry, as well in the design and manufacture of mechanical logging equipment. Timberjack produces: cable skidders, grapple skidders, clambunk skidders, log forwarders, mobile delimbers, feller bunchers and mining vehicles. Grapple Skidders available in models 240A, 380B, 450B and 480B.

Particular Specifications

	Smallest	Largest
Model	240A	480B
Overall Length mm (in.)	5768 (227)	6477 (255)
Maximum Width mm (in.)	2845 (112)	3048 (120)
Height mm (in.)	2797 (110)	3226 (127)
Ground Clearance mm (in.)	561 (22)	609 (24)
Weight kg (lb.)	9149 (20,170)	14565 (32,110)

Operational Specifications

Four wheel drive, articulated, rubber-tired grapple skidders for skidding trees/logs from stump to landing. To optimize production these machines are often utilized in conjunction with feller bunchers. Equipped with high-flotation tires, they are capable of operating under conditions of low ground bearing capacity, as well as on steep slopes.

Mechanical Specifications

	Smallest	Largest
Model	240A	480B
Engine	Cummins 4BTA3.9 87 kW (116 HP) @ 1600	Cummins 6BTA5.9 128 kW (174 HP) @ 1500
Winch	T20 (Optional T30)	T30
Line Pull	Bare Drum 89 kN (20,000 lb.)	Bare Drum 133 kN (30,000 lb.)
Tires		
Standard	28Lx26	30.5x32
Optional	23.1x26, 24.5x32 (reversing rim) 30.5x32, 67/34x26 (extra H.D. axles)	35.5x32, 73/44x32
Transmission	Powershift full reversing 6 forward and 6 reverse	Powershift full reversing 4 forward and 4 reverse
Arches	Single	Single and Dual
Grapples		
Sorting Heads	72"	72"/82"/86"/100"/104"
Bunching Heads		110"/120"/124"

MANUFACTURER:

Timberjack Inc.,

925 Devonshire Ave.,
P.O. Box 160,
Woodstock,Ont.,
N4S 7X1
TEL: (519) 537-6271
FAX: (519) 539-4750
TELEX: 064-74118

BALDERSON STEEP SLOPE GRAPPLE SKIDDER

Balderson steep slope grapple skidder combines high lift, with close-in towing, permitting the operator to reach over loads, lift to break them free, and then balance the machine for operating on steep slopes.

For log skidding on hilly or steep terrain, this attachment is made for the Cat. D5H custom skidder and Cat. D6H track-type tractor (currently available only for Cat. D6H). Grapples available in two models: basket type, for small diameter wood, and ice-tong type, for large diameter wood.

PRICE: List $65,000 F.O.B. Edmonton, Alta. (1988), delivery 8 to 10 weeks. Price for package includes a hydraulic add-on package, but does not include guarding modifications for the tractor itself.

Operational Specifications

The two piece boom provides good lift for breaking loads free in snowy conditions, and has a long rearward reach, giving extra grip on logs. Wide butt rack squares logs and keeps them from riding up on the tracks. Compact hydraulic winch has a 11340 kg (25,000 lb.) line pull, and does not interfere with the grapple. Both grapples feature constant tong pressure, 250 degree rotation and a mechanical snubber. Competitive manufactured grapples, can also be adapted to this machine.

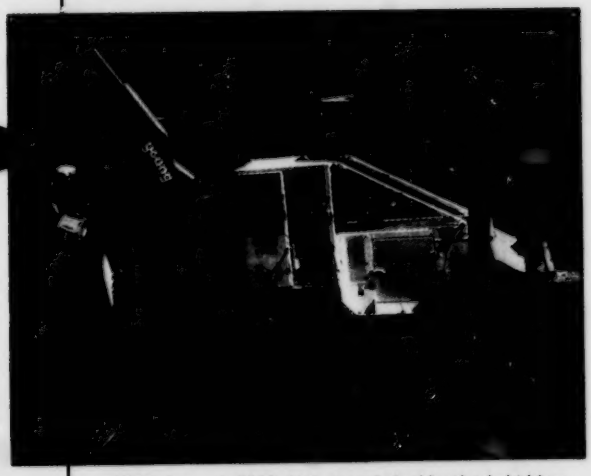
Particular Specifications

Model	D5H	D6H
Boom-Pin Height Raised mm (in.)	3150 (124.0)	3327 (131)
Reach-Boom Lowered mm (in.)	2388 (94.0)	2443 (96.2)
Ground Clearance mm (in.)	1092 (43.0)	1092 (43.0)
Ground Clearance @ Max. Reach mm (in.)	305 (12.0)	203 (8.0)
Grapple Capacity m^2 (sq. ft.)	1.02 (11.0)	1.34 (14.5)
Dealer Relocation of Rear Idler mm (in.)	N/A	236 (9.28)

MANUFACTURER:

Balderson Canada Ltd.,
6400-30 St.,
Edmonton, Alta,
T6P 1J6
Tel.(403) 469-9185
Fax.(403) 469-9256

KMC HIGH SPEED, STEEL TRACKED SKIDDERS



KMC, formerly FMC, high speed steel tracked skidders. Models 220CA, the steep slope alternative and FT-180, built to work in the woods

PRICE: Model 220CA, approx. $200,000 distributor retail, F.O.B. Nelson, B.C., available as of January 1989.
Model FT-180 approx. $133,000 distributor retail, F.O.B. Nelson, B.C., available as of January 1990.

The Company, a Canadian manufacturer, has obtained the rights to manufacture the former FMC tracked skidder line in Canada. Former FMC models 180; FT-180CA, chocker type, and FT-180AG grapple version; FMC models 200/220; 220CA, chocker type, and the 220AG, grapple version.

The Company also manufactures a 6-way hydraulic angle tilt brush blade for the KMC 200 series machine, for use in site preparation.

Physical Specifications

Model	220CA	FT180
Height m (ft.)	3.15 (10.33)	2.79 (9.17)
Overall Length m (ft.)	6.35 (20.92)	5.69 (18.67)
Width m (ft.)	2.62 (8.58)	2.44 (8.0)
Ground Clearance m (ft.)	0.48 (1.58)	0.41 (1.33)
Dry Weight kg (lb.)	13926 (30,700)	10823 (23860)

Mechanical Specifications

Model	220CA	FT180
Engine	Detroit Diesel 6V53N 212 HP @ 2600 RPM	Detroit Diesel 53T 118 HP @ 2600 RPM
Electrical	12 v. 225 amp hr. battery with 65 amp hr. alternator	12 v. 225 amp hr battery with 42 amp hr. alternator
Air Cleaner	Both models have Donaldson 2 stage dry element type	
Powertrain	Clark HR28420-E 4 speed power shift transmission with integral torque converter. Both models have differential controlled steering and planetary final drives	Clark 18326 3 speed power-shift transmission with integral torque converter
Winch Line Pull	Clark WD-413-1 13926 kg (40,000 lb.)	Clark WD-200 10318 kg (22,748 lb.)

Operational Specifications

Model	220CA	FT180
Payload kg (lb.)	15876 (35,000)	8165 (18,000)
Maximum Speed km/hr (mph)	23.33 (14.5)	24.14 (15.0)
Fuel Capacity L (gal).	189.25 (50)	189.25 (50)
Ground Pressure kPa (psi.):		
@ 0 soil penetration	42.64 (6.17)	41.58 (6.03)
@ 152mm (6″) penetration	36.61 (5.31)	27.24 (3.95)

The KMC 220CA and FT180 are particularly applicable as logging skidders in environmentally sensitive soils, in places where severe terrain mobility is required, in applications where fast travel speeds are needed and in marshy, wet, or tropical areas. Although the 220CA is more powerful than the FT 180, both machines are capable of performing over long distances and in slope conditions of between 30 and 60% grade.

MANUFACTURER:

Kootenay Tractor and Supply Ltd. (Mfg. Div.),
323 Vernon Street
Nelson, B.C. V1L 4E3
TEL: (604) 352-5301
FAX: (604) 352-5302
TELEX: 041-522

TIMBERJACK 230 FORWARDER

Timberjack 230 8-Ton Forwarder for up to 4.9 m (16 ft.) wood lengths. Powered by 100 HP Cummins Turbo engine. Loader capacity 400 lb. at 10 ft., max reach 17 ft. Also available in 5-Ton shortwood version.

Timberjack is a recognized name in the skidder industry, as well in the design and manufacture of mechanical logging equipment. Timberjack produces: cable skidders, grapple skidders, clambunk skidders, log forwarders, mobile delimbers, feller bunchers and mining vehicles.

Pulpwood/Log Forwarders, are available in 230-5T (5 ton), and 230-8T (8 ton) models.

Operational Specifications

Four-wheel drive, articulated, rubber-tired pulpwood/log forwarders for transporting pulpwood/logs from stump to landing. Self loading with hydraulic knuckleboom loader mounted on rear frame.

Particular Specifications

Model 230	5 Ton	8 Ton
Overall Length mm (in.)	6845 (270)	9335 (368)
Maximum Width mm (in.)	2752 (108)	3035 (120)
Height mm (in.)	3607 (142)	3683 (145)
Ground Clearance mm (in.)	533 (21)	597 (24)
Weight kg (lb.)	9090 (20,040)	10 718 (23,630)

Mechanical Specifications

Model 230	5 Ton	8 Ton
Engine	Cummins 4BT 3.9 75 kW (100 HP) @ 1700 RPM	Cummins 4BT 3.9 75 kW (100 HP) @ 1700 RPM
Transmission	Both have 5-speed synchromesh full reversing 10 forward, 10 reverse speeds	
Loader	Serco 4000	Serco 4000
Tires Standard	23.1x26	24.5x32
Optional	18.4x34 28Lx26	28Lx26, 30.5x32, 7/34x26* 66/43x26* * Consult factory
Wood Bunk Capacity	Up to 2.5 m (8 ft.)	Up to 4.9 m (16 ft.)
Wood Bunk Load	4536 kg (10,000 lb.)	7258 kg (16,000 lb.)

MANUFACTURER:

Timberjack Inc.,
925 Devonshire Ave.,
P.O. Box 160,
Woodstock, Ont.,
N4S 7X1
TEL: (519) 537-6271 FAX: (519) 539-5282
TELEX: 064-74118

CRABE FORWARDER

Crabe Short-wood Forwarder. Note the forward/backward facing seat to facilitate loading-transport.

Particular Specifications

Width, m (ft.in)	2.5 (8′3″)
Length, m (ft. in.)	7.0 (23′1″)
Height, m (ft. in.)	3.0 (9′10″)
Ground Clearance, m (ft. in.)	0.6 (2′0″)
Wheelbase length, m (ft. in)	3.2 (10′4″)

Weight, kg (lb)	front	rear	total
empty	3720 (8100)	1820 (4000)	5540 (12,100)
full	4100 (9000)	5450 (12,000)	9550 (21,000)

Mechanical Specifications

Motor	4-cylinder Cummins diesel, 4BTA3.9 86.4 kW (116 HP) at 2500 RPM
Hydrostatic transmission	variable, reversible
No-spin differential	ratio 5.38:1
Articulation, deg.	55
Oscillation, deg.	25
Tires, standard	16.9 x 30 nylon, Forestry type
optional	18.4 x 30 nylon, Forestry type
Loader	Rotobec model 40F
reach, m (ft. in.)	5.65 (18′6″)
grapple	continuous rotation
open, m (in)	1.7 (68)
closed, cm (in)	15 (6)
capacity, kg (lb)	740 (1540)
Operators cabin	heating/air conditioning
Options	accumulator on the principal cylinder wheel chains

Operational Specifications

Four wheel drive, articulated pulpwood/log forwarders for transport of pulpwood/logs off-road, with an integrally mounted Rotobec hydraulic knuckle boom loader mounted on the rear frame.

Maximum off-road speed is 10 k mph (6 mph) with an approx. load capacity of 4037 kg (8,900 lb).

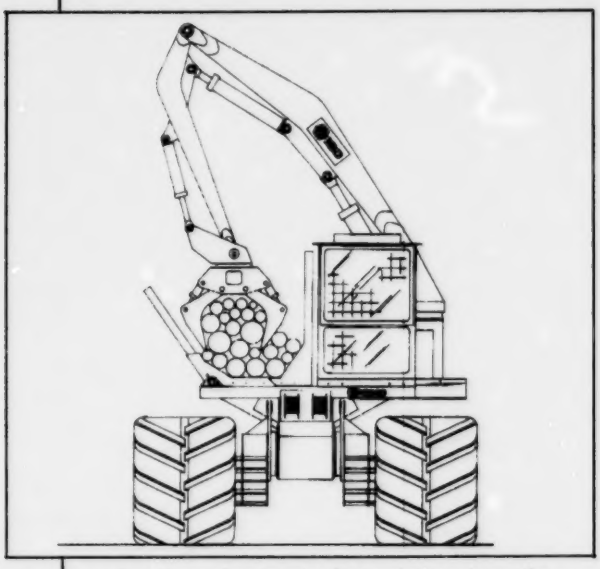
Protege-Sol manufactures two models of the Crabe Forwarder. The Company also manufactures the Le Crabe Forestry Harrow. This disc harrow, in contrast to others on the market, has each disc mounted on a separate arm, thus providing good ability to negotiate stumps and boulders.

MANUFACTURER:

Les Entreprises Protege-Sol, Inc.

621, Joncas
Laval, Que.,
H7X 2R2
TEL: (514) 386-8461

CANRON FORWARDER



The Canron Side Loading Forwarder is an innovative wood transporter designed by FERIC.

The modular harvesting system is the result of five years of investigation, field observations, analysis of equipment by the Forest Engineering Research Institute of Canada (FERIC).

This wood harvesting technology was designed and developed by FERIC, and transferred to the Mechanical Division of Canron Inc. for manufacture. Available now is the Canron model C-180 forwarder.

Particular Specifications

Tires:	four 69/50 X 32 wide tires with flanged type wheels and filled with a flat-guard product.
Brakes:	service braking is achieved by the hydro-static system
Swing drive:	235 degree rotation on a 76 cm (30 in) diam. slew ring
Weight, no load, kg (lb)	18 000 (39,600)
nominal load, kg (lb)	5 455 (12,000)

Mechanical Specifications

Engine:	Cummins 6BT5.9 four stroke, turbocharged diesel
Rated power, kW (hp)	113 (152) @ 2500 r.p.m.

Hydraulic System Drive:

Two closed circuit, variable displacement piston pumps, power four wheel-motors. One pump feeds the right side, the other powers the left side.

Max flow of each pump @ 2500 r.p.m.	4546 cm^3/sec (601 gal/min)
System pressure	421.8 kg/cm^2 (6000 psi)
Final Drive	81:1

Loader and Auxiliary Functions:

The flow coming from two load sensing variable displacement piston pumps is combined to feed the loader functions, the dumper cylinders and the tilt cylinder. The entire flow is available for each function and every function is independent and equipped with a pressure compensator.

Loader functions are operated by two joysticks. The drive system is controlled by two friction type levers mounted on the side of the operators seat.

Operational Specifications

Drive	
Top speed @ 5% R.R	4.8 (3) low displacement
km/hr (mph)	12.8 (8) high displacement
Max. tractive effort at stall	19 505 kg (43,000 lb) low displ.
	11 794 kg (26,000 lb) high displ.
Lifting Capacities	
Reach 6.1 m (20 ft)	2 268 kg (5,000 lb)
3.0 m (10 ft)	4 037 kg (8,900 lb)
Grapple capacity	0.6 m^3 (0.16 cord) @ 2.4 m (8 ft)
opening	(107 cm (42 in)
weight	680 kg (1500 lb)

The side loading system is a feature of the Canron C-180 forwarder. Full-trees or tree-lengths are carried instead of being hauled, giving better tree cleanliness at the road side, as well as minimizing damage to the forest sites.

The knuckle-boom loader permits trees to be picked up from both sides. The loader is equipped with a heel arm for better tree handling when manoeuvering in restricted areas.

Payload capacity does not depend on a clamp-bunk dimension, but is rated by the vehicle weight capacity. Dumper posts are easily adjustable to accommodate various dimensions and species of trees, or to receive delimbed or full trees.

Each wheel is powered by its own independent wheel-motor. Each side of the vehicle is fed by an independent, variable displacement, closed circuit, pump. Steering is achieved by changing the flow on each pump.

A high ground clearance and a good wheel displacement gives excellent manoeuvrability in tough off-road forest conditions.

The very short turning radius of the skid steer system combined to the unique suspension system, and the tilt mechanism eliminates many time consumming and complicated movements such as half-turns with a heavy load.

The specifications herein described are preliminary, with the manufacturer reserving the right to make changes as required.

MANUFACTURER:

Canron Inc.
Mechanical Division

227 St. Maurice,
Trois-Riveres, Que., G9A 5E5
TEL: (819) 371-8207 FAX: (819) 378-0535
TELEX: 05-837229

BALDERSON/FLECO A-FRAME GRAPPLE

The A-Frame grapple was designed for the Cat 518 skidder or equivalent. Available with 254cm(100in) or 305cm(120in) tongs. Balderson models BHG518A/120 and BHG518A/100

A-Frame Grapple features 360 deg. continuous rotation, good operator visibility, and no exposed hoses to break.

Operational Specifications

The grapple is an intergral part of mechanized logging operations. Grapple skidding is used in conjunction with feller bunchers during harvesting.

With the Balderson A-Frame Grapple, the 254 cm (100 in.) and 305 cm (120 in.) tongs can be interchanged to meet specific job requirements. Ice-tongs are also available, as well as a hydraulic accumulator for constant tong pressure, built-in fairlead rollers to permit cable skidding, full fender assembly to accomodate most tire sizes, including high-flotation tires.

Particular Specifications

Model	BHG518A/120	BGH518A
Depth, below ground mm (in.)	930 (36.6)	777 (30.6)
Clamp force @ tong tip to tip kg (lb.)	4900 (2223)	2495 (5500)
Hydraulic grapple head rotation	360 degree continuous	
Weight of grapple assembly complete with fenders kg (lb.)	1930 (4250)	
Cylinders	Tong (1)	Arch (2)
Bore mm (in.)	140 (5.5)	102 (4.0)
Operating Pressure, kg/cm² (psi)		176 (2500)

MANUFACTURER:

Balderson Canada Ltd.
6400 30th Street.,
Edmonton, Alta., T6P 1J6
TEL:(403) 469-9185
FAX:(403) 469-9256

DENIS SKIDDER BLADE GRAPPLE

The Denis skidder blade grapple is simply welded at one end of the skidder blade, and hydraulically powered. The standard max. grapple capacity is 60 cm (24 in.), with 35 cm (14 in.) optional.

Le Groupe Equipements Denis Inc. designs, manufactures and markets equipment for the forestry industry, from silviculture and harvesting, to wood handling and processing operations. It is recognized as one of the largest manufacturers of delimbers in North America.

Operational Specifications

The Denis skidder blade grapple can hold four or five trees depending upon their diameter. In recovering stems lost during normal skidding operations, an increase in daily skidder production of 7 to 10 percent has been recorded. In addition, the grapple is simple, reliable and sturdy, a multi-purpose tool in forest harvesting operations.

Particular Specifications

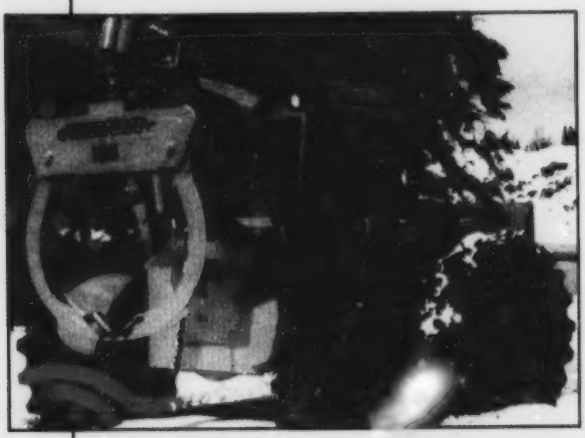
Standard Model	60 cm	(24 in.)
Height	117.5 cm	(46 1/4 in.)
Width	67.9 cm	(26 3/4 in.)
Depth	49.5 cm	(19 1/2 in.)
Weight	239 kg	(525 lb.)
Maximum Capacity	61 cm	(24 in.)
Cylinder	10.2 cm	(4 in.)
Options	Right or left grapple	

MANUFACTURER:

Le Groupe Equipements Denis Inc.,

5110 Beaudry Street,
St-Hyacinthe, Que.,
J2S 8A2
TEL: (514) 773-5454
FAX: (514) 773-3203
TELEX: 05-83051

HYDRAWRAP GRAPPLE ATTACHMENTS FOR CABLE SKIDDERS



The Hydrawrap 138 grapple on skidders up to 134Kw (180hp). The heavier structure and larger capacity 155 grapple is recommended for skidders over 100Kw (135hp).

Two sizes of Hydrawrap grapple attachments, Model 138 and Model 155, which can be fitted on any cable skidder as manufactured. The attachments consists of an arch straddling the fairlead, a rotator and grapple arms.

PRICE: Suggested retail, excluding installation, varies from $22,000.00 to $25,000.00 F.O.B. Swan, Man. (1988)

Operational Specifications

The grapple attachments give skidder operators the option of grapple skidding, or cable skidding with the grapple head in place. The grapple head can also be removed in less than 15 minutes for long periods of cable skidding.

Reported operations with a model 138 grapple on the Timberjack 450 skidder, the production averaged 26/m^3 SMH (10.8 cords/SMH), with load sizes approx. 2.4/m^3 (1cd) per turn.

The advantages of the Hydrawrap, over grapple skidders are as follows:

It is able to grasp one tree at a time with less chance of loss.

The skidder can still be used for cable skidding.

The grapple head can be removed in 15 minutes.

The operator has the ability to momentarily release the weight of the drag, and gain extra traction by the technique known as feathering, which is particularly useful up grades and over swampy ground.

It is an inexpensive solution offering skidder owners a choice of converting a cable operation to a grapple/feller-buncher type.

Particular Specifications

Models	138	155
Open span, cm(in)	328 (129)	368 (145)
Min. tree diam., cm (in)	5.1 (2)	5.1 (2)
Max. tree diam., cm (in)	122 (48)	152 (60)
Grapple cylinder, cm (in)	13x51 (5x20)	15x61 (6x24)
Weight, kg (lb)	998 (2200)	1134 (2500)

MANUFACTURER:

Hydrawrap Canada

P.O. Box 2968
Kenora, Ontario P9N 4C8
TEL: (807) 468-5330

JOHNSON SKIDDING GRAPPLE

The Johnson Skidding Grapple adapts to existing skidder arches and uses the main skidder winch to close the grapple and a second winch to open and position it

Johnson model S110 grapple mounts on rubber-tired skidders, trailer arches and track skidders. Johnson also manufactures cable grapples, chocker grapples, slack pulling carriages, radio released chockers.

Particular Specifications

Grapple Opening: cm (in)	279 (110)
Grapple Closing: cm (in)	13 (5)
Weight: Kg (lb)	726 (1600)
Closing Lines: cm (in)	1.9 to 2.5 (0.75 to 1)
Single valve control system	
Short profile grapple	

Operational Specifications

The grapple is easy to remove from the skidder for chocker skidding, when it is advantagenous to do so in a particular setting.

The double closing-line allows the grapple to gather and build a turn in hand felled wood, as well as pick up a turn of prebunched wood. The jaw tip configuration permits a turn to be dropped on adverse terrain, then winched in without losing any logs.

A variety of opening-line fairlead attachments are available to fit onto conventional skidder arches, trailer arches, hydraulic boom attachments and the FMC 220 arch.

MANUFACTURER:

Johnson Industries Ltd.
8500 River Road
Richmond, B.C., V6X 1Y4
TEL: (604) 273-3737 FAX: (604) 273-9654
TELEX: 04-357554

WELDCO SKIDDER GRAPPLES

Weldco Model W.P. 600 Parallelogram Grapple

Weldco skidding grapples come in models W.P. 600 Parallelogram Grapple, W.P.G. 550 skidder grapple.

The Company specializes in the design and manufacture of machines and attachments for the forest industry, with a wide range of products.

Operational Specifications

The W.P.600 grapple is particularly suited to the Clark 668-C skidder or similar, and the W.P.G 550 for the Cat 518 or similar.

The parallelogram grapple provides four way control of the grapple for lifting, lowering, reaching and pulling. Each of these operations can be performed independently of the other three, so that the grapple can be positioned on the load without moving the skidder. The lateral movement of the parallelogram allows the operator to reach over obstacles and load logs buried in mud and snow. The load can be positioned forward to transfer the weight to the rear wheels for better traction and stability.

Particular Specifications

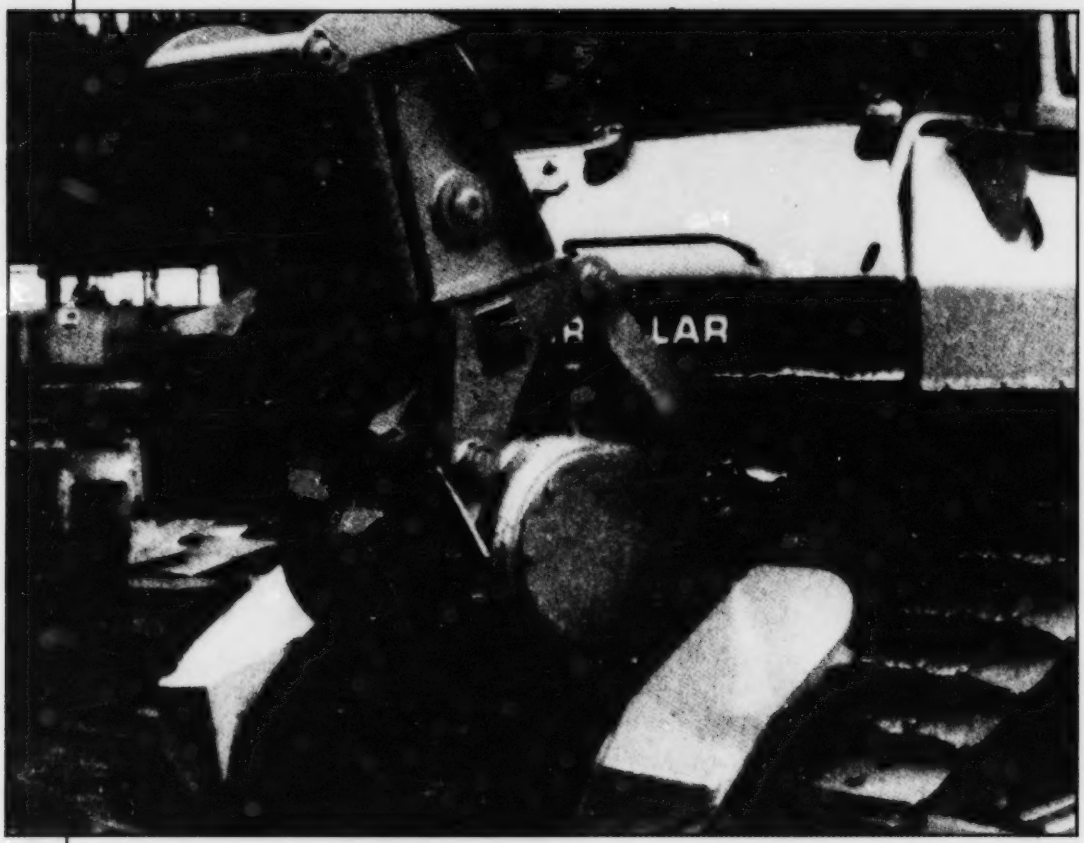
	Model W.P.600	Model WPG550
Reach(Maximum height)cm(in)	142(56)	133(52.5)
Reach(Tongs open at ground level,cm(in)	279(110)	224(88)
Height(Max.)cm(in)	376(148)	250(98.5)
Reach(Below ground)cm(in)	83(33)	83(33)
Clearance(Max.open)	145(57)	
Opening(Max.)	305(120)	279(110)
Closing(Min.)	15(6)	14(5.5)
Power Head Rotation,Degrees	240	270
Fore and Aft Travel cm(in)	152 (60)	
Hydraulic Cylinders (4) cm (in.)	11.4 (4.5)	10.2(4)
Grapple Cylinders (1) cm (in.)	16.5 (6.5)	16.5(6.5)
Weight, kg (lb)	2336 (5150)	2291(5050)

MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts St.
Burnaby, B.C., V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-55103

BALDERSON LOGGING ARCH AND FENDERS



The arch shown in the photo, is an integral arch with back stays, mounted on a Carco winch, on a D4H Caterpillar tractor

The Balderson line of arches are available to fit a variety of winches, in a variety of machine sizes and brands. They are designed particularly for the Cat. D5H and D4H custom skidders, as well as the Cat. D6H, D5H and D4H track type dozers, or equivalent.

Price:

Arch — List $4850 F.O.B. Edmonton, (1988), with delivery 3 to 4 weeks for common versions, and 8 to 10 weeks for specials.

Fenders — List per pair for D4H is $3100 F.O.B. Edmonton, (1988), with delivery of 4 weeks.

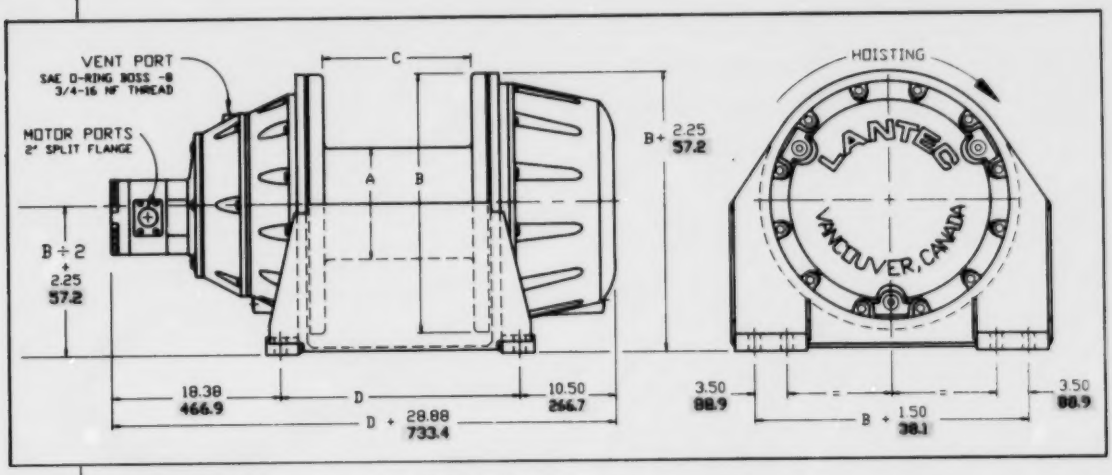
Particular Specifications

Logging Arch:	Four roller fairlead Large diameter main roller (straight) Sealed, self aligning, roller bearings Box section construction, to reduce weight
Fenders:	Lightweight alloy, steel box construction Under 363 kg (800 lb.) total added weight Adapters welded to track frames, allow easy bolting and unbolting of fenders Individually mounted to the track frames, thereby reducing the tendency to pinch debris

MANUFACTURER:

Balderson Canada Ltd.,
6400-30 St.
Edmonton, Alta., T6P 1J6
Tel. (403) 469-9185
Fax. (403) 469-9256

LANTEC HYDRAULIC WINCHES



Lantec builds winches to meet particular requirements, incorporating off-the-shelf components. Shown is the Lantec Model 540 Hydraulic Planetary Winch.

Lantec specializes in manufacturing winches, hoists and drives. Lantec winch models 200, 540, 750, hydraulic planetary winches. Line pulls available from 907 to 68 040 kg (2,000 to 150,000 lb.) depending on model. Forestry applications, in skidding and cable systems.

Lantec planetary drive models D200 with output torque up to 22 000 Nm (195,000 lb. in.). Lantec Model 100MB, 200MB Brakes.

Lantec marine winches and hoists such as windless type, remotely operated vehicle and barge winches.

MANUFACTURER:

Lantec Industries Inc.,
5827 Production Way,
Langley, B.C., V3A 4N5
TEL: (604) 530-0737 FAX: (604) 530-2889

Particular Specifications

Model	540	750
Line pulls to, kg(lb)	45 800 (101,000)	61 690 (136,000)

Fully hydraulic-single lever control
Brake-automatic failsafe multidisc
Heat treated steel planetary gear reductions
High capacity roller bearings
Fabricated steel cable drum and winch base

Lantec models 200, 540, and 750 series include a hydraulic gear motor, automatic failsafe multidisc brake with overunning clutch and two (200 series), three (540 and 750 series) planetary gear reductions. They are power in/power out winches, with equal speeds in both directions.

Lantec winch products are covered by a two year factory approved warranty. The company specializes in custom design and manufacture to meet exact application needs in forestry.

OPSAL FAIRLEADS

Opsal Fairleads, roller type, self aligning type-360 deg

Osco logging equipment includes: blocks such as passline,haulback, transfer, yarding, highlead, snatch, hoisting, general purpose types, used on cable logging systems; tree-jack sheaves, supporting cables on skyline systems; carriages; fairleads; tree climbers gear for loggers and high riggers.

The Fairleads are: self aligning, 360 degree swivel head type, roller.

Particular Specifications

Fairlead, Self Aligning Type Model	Type	Wire rope cm (in)	Sheaves cm (in)	Weight kg (lb)
10	Mainline	2.5 (1)	30.5 (12)	245 (540)
1	"	3.1 (1 1/4)	35.6 (14)	370 (815)
8	"	3.8 (1 1/2)	35.6 (14)	635 (1400)
2	Haulback	1.9 (3/4) - 2.2 (7/8)	25.4 (10)	132 (290)
15	Strawline	1.3 (1/2) - 1.6 (5/8)	17.8 (7)	57 (125)

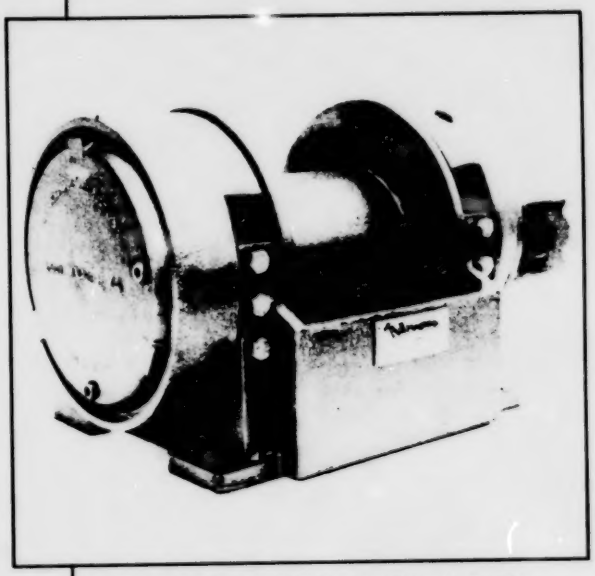
Fairlead, Roller Type Model	Wire Rope cm (in)	Rollers cm (in)	Opening cm (in)	Weight kg (lb)
4	2.5 (1)	10 (4) x 30.5 (12)	5.7 (2.25)	132 (290)
5	1.6 (5/8)	7.6 (3) x 22.9 (9)	5.1 (2)	64 (141)
6	1 (3/8)	5.1 (2) x 17.8 (7)	5.1 (2)	29.5 (65)

The Osco fairleads are manufactured in a variety of sizes and types, and special fairleads can also be made to customer specifications.

MANUFACTURER:

Opsal Steel Ltd.,
97 E. Second Ave.,
Vancover, B.C.,
V5T 1B3
TEL: (604) 879-1531
FAX: (604) 879-6766

PULLMASTER PLANETARY WINCHES



The Pullmaster Model M10F planetary winch with a hydraulically actuated free spool function, for winch operations such as skidding, where the wire rope has to be pulled off the cable drum by hand.

Three types of planetary winches are manufactured by the Pullmaster Winch Corp.

The PL and M Series, including seven basic models with capacities from 907 kg (2000 lb) to 22 680 kg (50,000 lb) line pull, and choice of drum size, choice of hydraulic motors, external brake release, free spooling, controlled free fall, drum grooving are available.

The H series, four models with capacities from 3 175 kg (7,000 lb) to 22 680 kg (50,000 lb) line pull are available with the rapid reverse feature.

The R series recovery winches are of the same design concept as hoisting winches.

Operational Specifications

On the Model M10F winch, free spooling is achieved by a disconnect between the cable drum, and the planetary gear train. An adjustable drag mechanism keeps the drum from over-running, when the winch is in the free spool operation.

Partricular Specifications

Model	Bare drum		Full Drum	
	Line Pull kg (lb)	Line Speed m/min (fpm)	Line Pull kg (lbs)	Line Speed m/min (fpm)
M10-3-50-1	5454 (12000)	30 (100)	3182 (7000)	53 (175)
M5-3-10	2722 (6000)	19 (63)	1856 (4091)	30 (98)
PL7-3-30	3176 (7000)	32 (122)	2264 (5210)	50 (164)
PL4-3-10	1815 (4000)	21 (70)	1370 (3000)	28 (92)

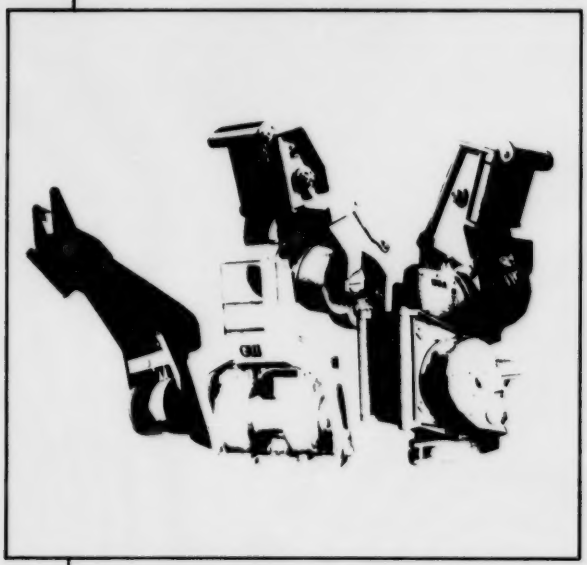
Model M10 can be supplied with: cable drums of various sizes
grooved drums
rachet and pawl as an integral part
external brake release

MANUFACTURER:

Pull Master Winch Corporation

8247-130 Street
Surrey, B.C., V3W 7X4
TEL: (604) 594-4444
TELEX: 04-54436

WELDCO-BEALES INTEGRAL ARCHES, FAIRLEADS



Weldco-Beales Arches and Fairleads manufactured for all sizes of tractors and winches.

Weldco Arch/Fairlead Models No. A75A, E&F, A75B, A75C, A75D, A75G Integral Arches. Arch/Fairlead Models No. A100A, A100B: Top Mounted Winch Arches, Model A200, A300 Integral Arches: Models F75, F100, F200, F300 Fairleads, Double Fairlead Integral Arch, Snorkel Fairlead. Special arches are manufactured to the purchasers specifications.

Operational Specifications

Models A75 are lightweight integral arches built for 45-67 kW (60-90 hp) tractors. Models A100 are top winch mounted fairleads for intermediate logging operation applications. Models A200 - A300 are heavy duty integral arches for 67 to 261 kW (90 to 350 hp) tractors.

The top (A100) mounted winch-arches are designed for easy removal, mounted directly on top of the winch. The model (A100) may be easily customized to fit most arch/winch combinations, regardless of tractor model or manufacture. Three or four roller configurations are available.

Particular Specifications

Arch/Fairlead Model No.	Fairlead Opening A x B cm(in)	Winch	Description	Appro. Wt. kg (lb)
A75A,E,F	24x21.6 (9.5x8.5)	Gearmatic 19	Legs straddle winch brackets	284 (625)
A75B	24x21.5 (9.5x8.5)	Rome,Carco C28, C36	Attaches to winch adapt.	227 (500)
A75C	24x21.5 (9.5x8.5)	Komatsu D31	Direct to top of winch	195 (430)
A75D	24x21.5 (9.5x8.5)	Carco C28, C36	same as 75B ex. rol. conf.	227 (500)
A75G	24x21.5 (9.5x8.5)	Cat 54	Legs straddle winch brackets	286 (630)
A100A	25.4x17.8 (10x7)	Carco E30 Hyster W5A	Adapt lugs to top of winch	327 (720)
A100B	25.4x16.5 (10x6.5)	Carco 50, 60 Hyster W6E	Adapt lugs to top of winch	295 (650)
A200	34x19 (13.5x7.5)	Cat 55,Carco 50, 60 Hyster D6D, D6E		567 (1250)
A300	34x29 (13.5x11.5)	Hy W6E&F, Cat 56 Car G80, Car J120, Hy W8K, D7F, Cat 58,59		635 (1400)

MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts St.
Burnaby, B.C., V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-55103

JACKSON R.O.P.S. CANOPY

The R.O.P.S. meet all roll-over and falling object protection requirements (SAE J1040C, J231). ROPS are designed to provide easy installation and removal for machine maintenance.

MANUFACTURER:

Jackson Manufacturing and Machinery Ltd.

518 North Broadway
Tillsonburg, Ont., N4G 3S7
TEL: (519) 842-5941
FAX: (519) 842-2116

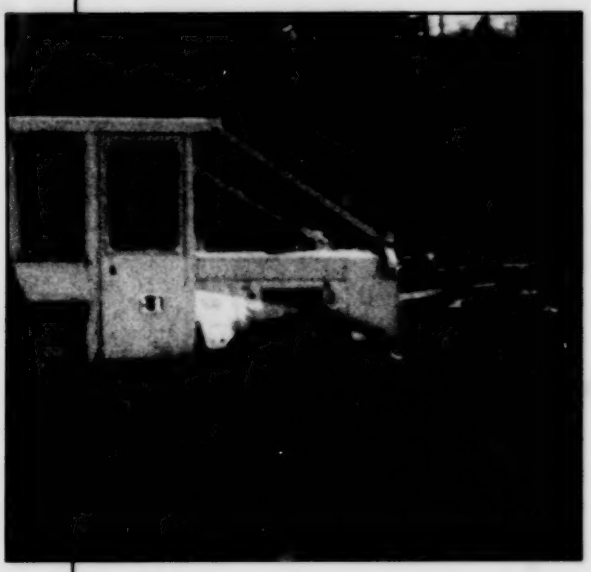
Jackson Manufacturing custom designs and produces R.O.P.S., F.O.P.S. protective structures for skidders, loaders and dozers; the Company also undertakes general fabricating and tube bending.

Particular Specifications

The custom built canopy provides the required protection, sufficient elbow room, and a good view.

They are presently being utilized by several major forest equipment manufacturers on their forest equipment line. In addition the Company does custom manufacturing to meet forest operators needs for equipment protection.

WELDCO R.O.P.S. CANOPIES, AND CABS



Weldco cabs are designed to be compatible with factory ROPS to keep the operator safe, comfortable, and productive

Weldco canopies and cabs for Cat 950B, 966D, 980C , 950E, 966E; Komatsu D31, D65E, and other loaders and dozers, including older models; Cat D8L Low Profile O/ROPS and E/ROPS; ROPS for 941, 951, 955L, 977L and 983

Particular Specifications

Weldco-Beales Model D8L Low Profile ROPS

Width,cm(in)	192 (75.75)
Overall Height, m (ft)	3.6 (11.73)
Deck to Canopy Top, cm (in)	147 (57.75)
Canopy Length, cm (in) (FOPS rated)	152 (60.0)
ROPS Canopy, kg (lb)	671 (1480)
Sweeps, kg (lb)	268 (590)
Side Screens & Posts, kg (lb)	82 (180)
Rear Screen, kg (lb)	39 (85)
Tank Guard, kg (lb)	508 (1120)
Enclosure Kit, kg (lb)	340 (750)

Optional Logging Package:
Includes sweeps, extra post, side screens, rear screens, tank guards.
Optional Accessories:
Front sweep arms, rear screen, side screens, extra side column, enclosure kit, noise suppression kit, hydraulic air conditioner, heater (33,000 BTU), cab pressurizer, windshield wiper kit.

Operational Specifications

The overall height is 38.1 cm (15in), lower than the factory model. This decrease in height can be critical when moving from one logging job to another.

ROPS meets all rollover and falling object protection requirements, SAE J1040C.J231

Standard ROPS can be installed on factory mounts or special Weldco-Beales mounts.

For complete environmental control, a cab enclosure kit is available with heating, air conditioning, sound suppression and pressurization options.

MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts St.
Burnaby, B.C., V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-55103

BOUCHOOK END BELL

Bouchook End Bell, increases skidder mainline life over conventional end bell types.

Particular Specifications

Hardened alloy steel casting
Replaceable roller with bronze bushing and grease fitting
Tested to over 11 340kg (25,000lb)

Operational Specifications

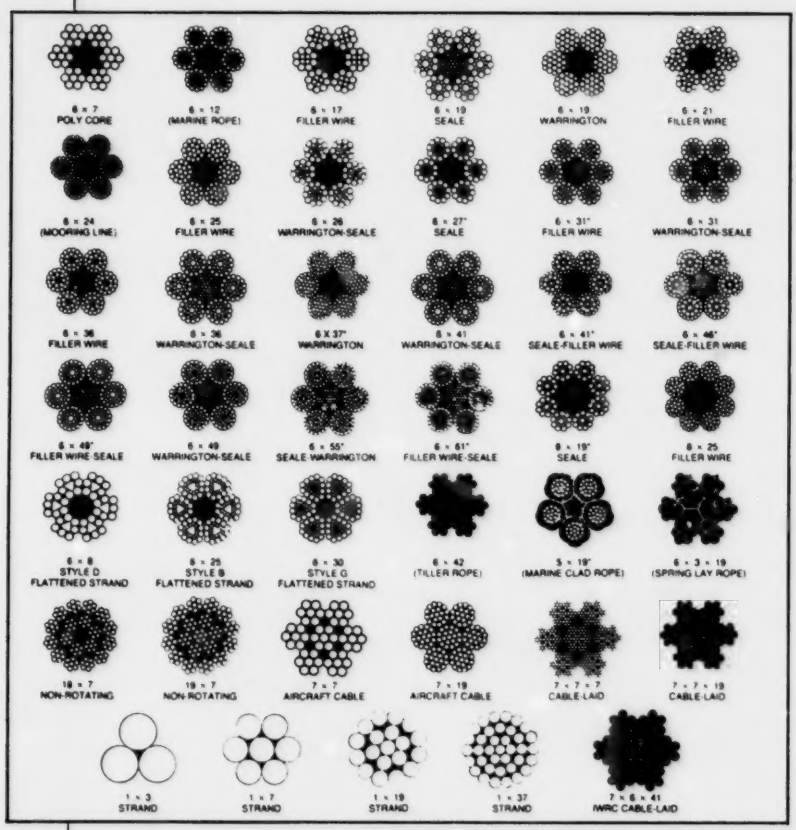
Roller increases skidder mainline life over conventional end bells, with less fraying on mainline under rugged field applications. In terms of winches, it results in reduced wear, decreased incidence of fire hazard and less equipment downtime.

MANUFACTURER:

Victoria Machine Shop Ltd.

P.O. Box 509
Plaster Rock, N.B., E0J 1W0
TEL: (506) 356-8639

COMOR WIRE ROPE AND RIGGING


6 x 7 POLY CORE
6 x 12 (MARINE ROPE)
6 x 17 FILLER WIRE
6 x 19 SEALE
6 x 19 WARRINGTON
6 x 21 FILLER WIRE
6 x 24 (MOORING LINE)
6 x 25 FILLER WIRE
6 x 26 WARRINGTON-SEALE
6 x 27 SEALE
6 x 31 FILLER WIRE
6 x 31 WARRINGTON-SEALE
6 x 36 FILLER WIRE
6 x 36 WARRINGTON-SEALE
6 X 37 WARRINGTON
6 x 41 WARRINGTON-SEALE
6 x 41 SEALE-FILLER WIRE
6 x 46 SEALE-FILLER WIRE
6 x 49 FILLER WIRE SEALE
6 x 49 WARRINGTON-SEALE
6 x 55 SEALE-WARRINGTON
6 x 61 FILLER WIRE-SEALE
8 x 19 SEALE
8 x 25 FILLER WIRE
8 x 8 STYLE D FLATTENED STRAND
8 x 25 STYLE B FLATTENED STRAND
8 x 30 STYLE C FLATTENED STRAND
6 x 42 (TILLER ROPE)
5 x 19 (MARINE CLAD ROPE)
6 x 3 x 19 (SPRING LAY ROPE)
18 x 7 NON-ROTATING
19 x 7 NON-ROTATING
7 x 7 AIRCRAFT CABLE
7 x 19 AIRCRAFT CABLE
7 x 7 x 7 CABLE-LAID
7 x 7 x 19 CABLE-LAID
1 x 3 STRAND
1 x 7 STRAND
1 x 19 STRAND
1 x 37 STRAND
7 x 6 x 41 IWRC CABLE-LAID

Comor Supplies Wire Rope Cross Sections

Comor are specialists in wire rope and rigging for logging, construction and marine.

PRICE: The prices for new and used wire rope are per 100 ft. FOB Surrey,B.C.

Particular Specifications

Comor Supplies Ltd. manufactures standard ferrule and lightweight choker hooks, spiral quickway and zinc type ferrules, wire rope clips, shackles for anchors, chains and rigging, wire rope staples, tractor (bull) hooks, rafting dogs, travelling and medium duty snatch blocks, Morse Starrett wire rope cutters and parts, track spikes, drew marlin spikes, anodized aluminum pike poles, peavies and coil and anchor chain.

MANUFACTURER:

Comor Supplies Ltd.,

7800 Anvil Way,
Surrey, B.C., V3W 4H7
TEL: (604) 591-1131
FAX: (604) 591-1088
TELEX: 04-55749

OPSAL CABLES, BLOCKS AND SHEAVES

Osco # 487 light weight Haulback Block 14", sheave (right) and # 925 Tommy Moore 6", sheave (left).

Osco logging equipment: Blocks such as passline, haulback, transfer, yarding, highlead, snatch, hoisting, general purpose types, used on cable logging systems; Tree jack sheaves, supporting cables on skyline systems.

Carriages; Fairleads.

Particular Specifications

Opsal Steel Ltd. products are known for their strength, endurance, dependability, precise machine work, careful fitting and assembly.

The Company produces models, styles and sizes of blocks and sheaves to suit particular requirements in forestry, as well as in mining, construction and fishing.

Haulback Blocks Series 407, 408 and 409, light weight for high speed and light duty work such as haulback lines on forest applications.

Haulback Blocks Series 427 and 428, light weight for high speed and medium duty. These blocks are ideal for haulback work in the forest.

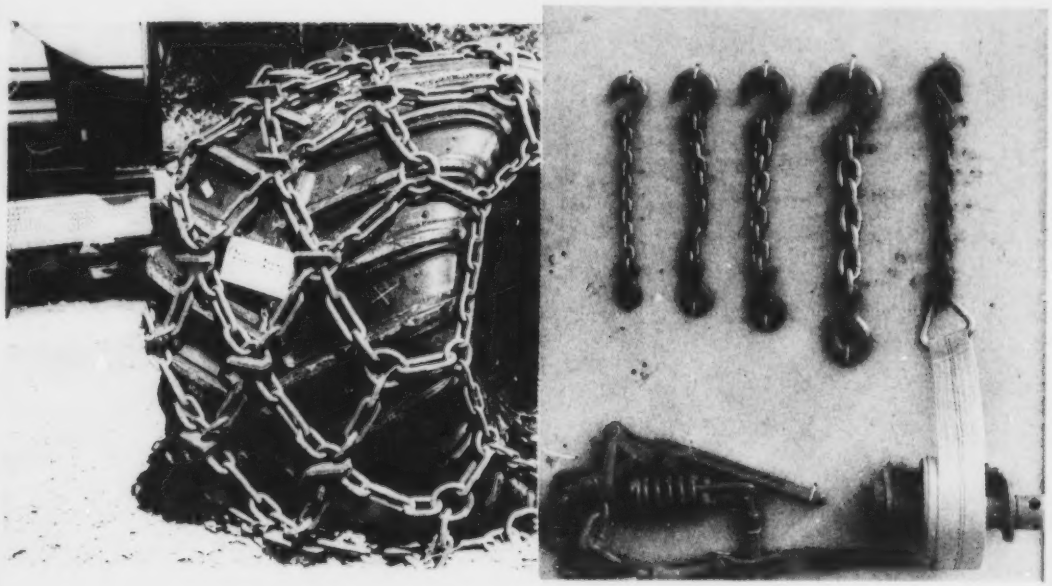
Haulback Block Series 415, light weight for high speed, and heavy duty work in the forest; and Series 412,414 and 416 for high speed, and heavy duty, tough, dependable service forest applications.

Haulback Blocks Series 518 and 519 for high speed and heavy duty haulback work. Block Series 524 often used as a back spar block. Tommy Moore Passline Block Series 925 and 925A designed for line rigging with a safe working load of 2722 kg (6 tons).

MANUFACTURER:

Opsal Steel Ltd.,
97 E. Second Ave.,
Vancouver, B.C., V5T 1B3
TEL: (604) 879-1531
FAX: (604) 879-6766

QUEBEC TRACTION FORESTRY TIRE CHAINS



Quebec Traction Chains, high floatation, extra wide, tire net chain (left), and chain accessories for load retainment (right).

Quebec Traction Chains are manufacturers of chain derived products such as load retainers, chain-hooks and forestry tire chains.

Forestry tire chains are available in models MR-4000 (net chain type, multi-ring chain, regular ring chain, diamond type chain), MR-1000 and MR-2000 tire chains.

PRICE: Tire chain price depends on dimension of tire and chain type required.

Specifications

Chain Links	15.9 or 19.0 mm (5/8 or 3/4 in.) diameter, grade 70 tempered steel Applicable to all, except MR-1000, which is 9.5 or 11.1 mm (3/8 or 7/16 in.) diameter.
Weight	All models are between 227 to 454 kg (500 to 1000 lb.)
Fits Tire Sizes	16.9x30, 18.4x30, 18.4x34, 23.1x26, 28.1x26, 24.5x32, 30.5x32, 35.5x32 (Regular and multi-ring); and also 73x44x32 (net chain type, MR-4000); and 37.5x39, 43.5x39, 24.5x32 (diamond type); 12.4x24, or 18.4x25 (MR-1000)

MANUFACTURER:

Les Chaines de Traction Quebec Ltd.,

9751, blvd Parkway
Ville d'Anjou, Quebec
H1J 1P3
TEL: (514) 353-9210
FAX: (514) 353-2593

CYPRESS YARDER

Cypress mobile swing yarder with tractor type undercarriage and self- lowering gantry, which allows the machine to move without disassembly.

Cypress model 7280 mobile swing yarder. The Company also manufactures the Model 7230 cable log loader

PRICE: $850,000. F.O.B. Cypress yard, Delta, B.C.(1988) (Grapple and lines are extra)

Operational Specifications

The 7280 is a high horsepower mobile swing yarder designed to function as a grapple or carriage yarder over distances up to 457 m (1500 ft). The 21 m (70 ft) boom height improves lift, the mechanically regenerative winch yields the high line speeds and pulls, giving smooth, precise control. The rugged tractor-type undercarriage is hydraulically powered through a triple reduction planetary final drive.

Central greasing, modular design, standardization of components, ergonometically designed cab and controls, all add to simplified maintenance and ease of operation.

Physical Specifications

Height: m (ft)	11.6 (38)
O'A Length: m (ft)	5.5 (18)
Width: m (ft)	3.9 (12.83)
Weight: kg (lb) Dry-no rigging	73 483 (162,000)
Weight: kg (lb) (Less boom & gantry)	61 236 (135,000)

Mechanical Specifications

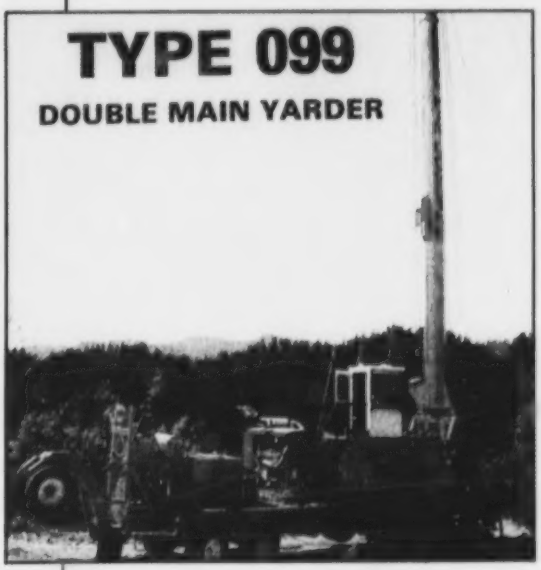
Engine: kW (Hp)	GM Diesel 12V71N 354(475)
Torque Converter:	Twin Disc 11,500 Series
Transmission:	Twin Disc 2880 , 2-speed
Winch drums:	2 Main : 366m(1200ft) of 2.5cm(1in) wire capacity(each)
Haulback:	1250m(4100ft) of 2.2cm(.875in) wire
Strawline:	914m(3000ft) of 1.1cm(.438in) wire
Controls:	Single lever hydraulic servo
Turntable:	S18cm(86in) O.D.
Boom:	19.8m(65ft) w/3 bullseye fairleads
Undercarriage:	Model 8300
Crawler:	81cm(32in) double grouser shoe
	D8K idlers and sprockets, 245 rollers
Options:	Extra wide fairlead, 20x61cm(8x24in)
	Track guides, Boom Guard Kit, Rigging Box
	Air Conditioning, 24 to 12 volt radio conv.
	Fire Suppression Kit
	Yarding grapples, Dropline Carriage
	Dual wipers, Racor fuel filters

MANUFACTURER:

Cypress Equipment Co. Ltd.

8760 River Road
Delta, B.C., V4G 1B5
TEL: (604) 946-1171
FAX: (604) 946-1319

MADILL DOUBLE MAIN YARDER



S. Madill Type 099 double main yarder.

S. Madill are specialists in the manufacture of cable logging equipment. The Madill Type 099 double main yarder, model 4-525.

Operational Specifications

The two main drums have the same ratio to the converter output shaft. During the yarding cycle, the holding and closing lines connected to the two drums, will be driven at the same speed. The differential between main and haulback line speeds during the yarding cycle is achieved through the gear drive incorporated in the gear train.

A three stage hydraulic torque converter automatically selects the optimum engine torque multiplication to suit any yarding condition.

Optional engine available - G.M. 12V71/TV, with torque converter, twin disc type MS340.

Particular Specifications

Drum	Two Main	Haulback	Straw
Dimensions mm (in.)			
Flange	1 118 (44)	1 016 (40)	1 016 (40)
Core	508 (20)	508 (20)	292 (11.5)
Core Length	737 (29)	737 (29)	191 (7.5)
Operating Capacity	853 (2800)-25(1)	1 219 (4000)-19 (.75)	1 158 (3800)-11 (.44)
m (ft.) mm (in.)	579 (1900)-32 (1.25)	884 (2900)-22 (.88)	884 (2900)-13 (.5)
	457 (1500)-35 (1.38)	701 (2300)-25 (1)	701 (2300)-14 (.56)
Line Pull kg (lb.)			
Bare	48 444 (106,800)	17 736 (39,100)	12 587 (27,750)
Mid	33 929 (74,800)	12 247 (27,000)	5 833 (12,860)
Full	26 082 (57,500)	9 390 (20,700)	3 797 (8370)
Max. Line Speed m/min (fpm)			
Bare	187 (614)	511 (1676)	294 (964)
Mid	267 (877)	739 (2424)	639 (2080)
Full	347 (1140)	967 (3171)	974 (3196)

MANUFACTURER:

S. Madill Ltd.,

P.O. Box 4300,
Nanaimo, B.C., V9R 5M6
TEL: (604) 758-5255
TELEX: 044-6544

MADILL TYPE 171 MOBILE YARDER

Model 171T crawler mounted, five-drum, mobile, highlead/skyline yarder.

S. Madill are specialists in the manufacture of cable logging equipment. The Madill Type 171 five drum yarder is available in Types 171T on M4A3 tracked carrier, and 171R on 071 rubber tired carrier. Model 5-400 includes haulback, main, skyline, tagline and strawline.

Particular Specifications

O/A Length with tower lowered m (ft.)	16.5 (54)
O/A Height with tower lowered m (ft.)	5.0 (16.5)
O/A Width m (ft.)	3.1 (10.25)
O/A Height with tower raised m (ft.)	21.3 (70)
Weight kg (lb.)	46 267 (102,000)

Mechanical Specifications

Type 171 Five Drum Yarder includes haulback, main, skyline, tagline and straw drum.

Engine	Cummins NTA855C rated at 400 HP
Converter	Twin disc 11500 MS 340 three-stage hydraulic torque converter

Operational Specifications

High speed yarding uphill or down, skyline or highlead. Cab controlled, powered guylines with a telescopic tower that extends and tilts hydraulically.

This machine is provided with a low pressure air system for all clutch, brake and engine controls. This ensures that the majority of components are interchangeable with truck systems.

The cab is split so that the upper half can be removed for highway transportation.

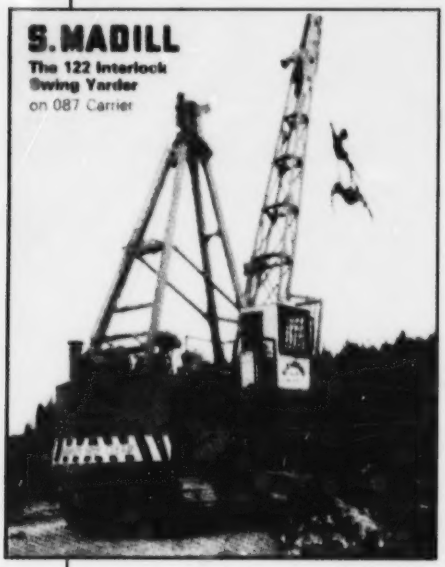
The 171 track carrier is capable of a speed up to 8 kmh (5 mph), with a gradability of up to 30%.

Utilized in clear cut or selective logging, sanitizing and yum-yarding of short logs or tree lengths.

MANUFACTURER:

S. Madill Ltd.,
P.O. Box 4300,
Nanaimo, B.C., V9R 5M6
TEL: (604) 758-5255
TELEX: 044-6544

MADILL INTERLOCK SWING YARDER



The Madil 122 Interlock Swing Yarder mounted on the 087 Carrier

S. Madill are specialists in the manufacture of cable logging equipment. The Madill Type 122, 143 and 144 interlock swing yarders are available in model 4-525 on hydraulic and mechanical carriers, or model 4-425 on 087 hydraulic carrier.

Operational Specifications

The Winch: The Madill interlock system has the main drums arranged one behind the other. When the clutches are applied and as the load is coming in, the haulback, main, and slackpuller shafts are locked together. The power going into the haulback from the interlock clutch will equalize the tension in the main and haulback lines.

The interlock ratio, which is the result of a full main drum and empty haulback drum is held to a minimum. This means minimal slippage takes place on the interlock clutch, less horsepower turned into heat, minimal wear on the frictions, and as a result, the line speed increases to give greater productivity and lower fuel consumption.

The interlock clutches are water cooled to eliminate any heat build up.The winch is readily serviceable with the gears and clutches located on the outside of the winch frame.

The Carrier: The 047 mechanically driven carrier features a rubber-mounted roller suspension to give a smooth ride, thereby increasing the life of all other track components. The mechanical drive allows tavelling speeds up to 7.25 km/hr (4.5mph). The overall size assures maximum stability.

The 087 hydraulically drive carrier features rollers mounted on a rubber suspension. The planetary drives may be removed from the side frames as separate units to simplify maintenance procedures. The triple grouser track shoes can be supplied in different widths to suit ground conditions.

In reported operational tests on the westcoast of Canada,, it was found that the main factor influencing yarding profitability was turn size, with yarding distance having a lesser influence.

Particular Specifications

Model	122	143	144
O/A Length m (ft.)	5.5 (18)	6.1 (20)	7.3 (23.8)
O/A Height m (ft.)	16.5 (54)	21 (69)	21.3 (70)
O/A Width m (ft.)	3.7 (12)	4.0 (13)	4.0 (13)
Weight kg (lb.)	52 300 (1150,00)	77 111 (170,000)	89 630 (197,600)
Ground Pressure kg/cm² (psi)	0.81 (11.5)	1.03 (14)	1.55 (22)

Mechanical Specifications

Model	122	143	144
Engine	G.M. 8V92TA 425 HP	G.M. 12V71TV Cummins KTA-1150 Cat. 3408	G.M. 12V71TV Cummins KTA-1150 Cat. 3408
Converter	Twin-disc type 4 hydraulic with MS475 blading	Both models have twin-disc 11500 series with MS340 blading	
Transmission	Twin-disc 2800 series	Both models have two speed twin- disc, power shift model 2800	

MANUFACTURER:

S. Madill Ltd.,

P.O. Box 4300,
Nanaimo, B.C., V9R 5M6
TEL: (604) 758-5255
TELEX: 044-6544

THE SKYLEAD M35 YARDER

Skylead M35 4-drum Cable Yarder shown here mounted on Timberjack 240 Super E Skidder.

Skylead M35 Cable Yarder mounted on a conventional rubber tired skidder.

PRICE: Approx. $130,000.00 F.O.B. Enderby, B.C., (1988)

Operational Specifications

The Skylead M35 Yarder is ideally suited for commercial thinning, selective logging or clear cut logging on steep slopes or other environmentally sensitive areas.

The yarder can handle an average turn up to 2 722kg (3 tons) and will yard tree lengths up to 7.32m (24') in length.

Mounted on a conventional rubber tired skidder, it is very effective and economical for isolated pockets of wood, blow downs and rough terrain.

The suggested crew size is as follows:

1 man operating yarder & unhooking
1 man setting chokers
1 man falling
1 man skidding away from yarder & loading
1 man bucking & delimbing

Experienced crews can expect to get 4-5 highway truckloads production per day on average uphill clear cut sites.

Particular Specifications

O/A Length with tower lowered m (ft.)	10.67 (35.0)
O/A Height with tower lowered m (ft.)	3.43 (11.25)
O/A Width m (ft.)	2.44 (8.0)
O/A Height with tower raised m (ft.)	10.67 (35.0)
Weight kg (lb.)	12 701 (28,000)

Mechanical Specifications

Requires 100 to 120 HP power source.

Skyline	19mm (3/4") - 520 m (1700 ft.) or 16 mm (5/8") - 730 m (2400 ft.)
Mainline and Haulback	12 mm (1/2") - 335 m (1100 ft.) or 11 mm (7/16") - 460 m (1500 ft.) 9 mm (3/8") - 580 m (1900 ft.)
Strawline	5 mm (3/16") - 760 m (2500 ft.)
Guyline	19 mm (3/4") - 73 m (240 ft.)

MANUFACTURER:

Skylead Logging Equipment Corp.,
P.O. Box 880,
Enderby, B.C., V0E 1V0
TEL: (604) 838-6845,
TELEX: 048-85360

JOHNSON CHOKER GRAPPLES

Johnson Chocker grapple for small and bunched wood

Johnson grapples models Y-116, Y-106H, Y-106, Y-86H and Y-86. Also manufactures skidding grapples, slack pulling carriages and radio released chockers.

Operational Specifications

Production features double jaw reeving for greater closing force. Tensioned chocker cable action cinches the logs in the jaws, and the live closing cable works with log movement. It opens at the landing without slacking the haulback line. Easily rigged with yo-yo block for equal mainline pull. Incorporates a three-way slider to prevent line twisting.

Physical and Mechanical Specifications

Model	Jaw Thick cm (in.)	Max Cable Size cm (in.)	Length Close Cab. m (ft)	Jaw open. cm (in.)	Basic Dim. Height cm(in)	Thick cm(in)	Total Weight Car.&Grap kg(lb)
Y-116	6.4 (2.5)	2.9 (1.13)	8.1 (26.5)	294 (116)	223 (88)	152 (60)	1383 (3050)
Y-106H	6.4 (2.5)	2.5 (1)	7.3 (24)	269 (106)	208 (82)	142 (56)	1306 (2880)
Y-106	5.1 (2)	2.5 (1)	7.3 (24)	269 (106)	208 (82)	142 (56)	1161 (2560)
Y-86H	5.1 (2)	2.2 (0.875)	6.6 (21.5)	218 (86)	193 (76)	107 (42)	884 (1950)
Y-86	4.4 (1.75)	2.2 (0.875)	6.6 (21.5)	218 (86)	193 (76)	107 (42)	834 (1840)

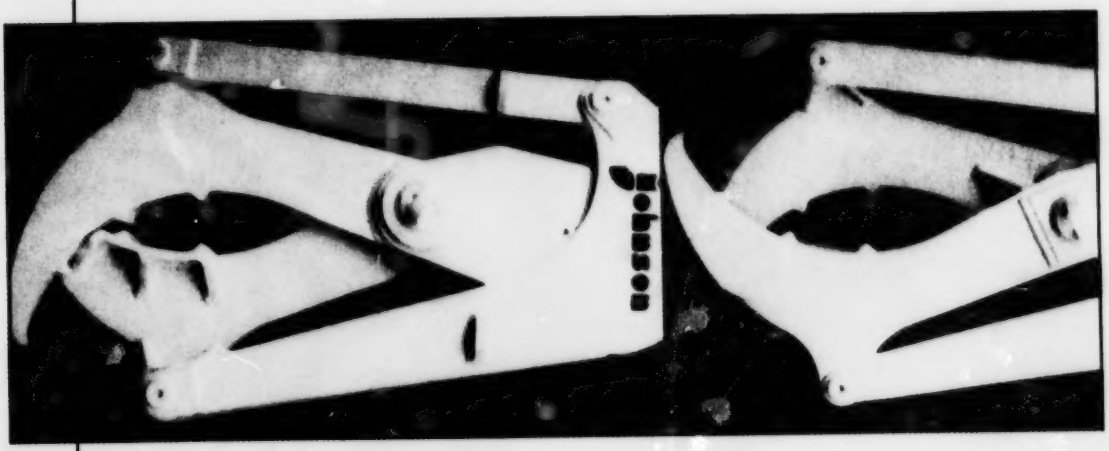
Options: include heavier jaws, manganese chains, larger sheaves and custom carriage features.

MANUFACTURER:

Johnson Industries Ltd.

8500 River Road
Richmond,B.C., V6X 1Y4
TEL: (604) 273-3737
FAX: (604) 273-9654
TELEX: 04-357554

JOHNSON CABLE LOG GRAPPLES



Johnson Cable Log grapples. Two-point (left) for heel-boom loading; three-point (right), for multi-log handling.

Johnson two-point, and three-point cable grapples, models L260, L272, L360 and L372. Johnson also manufactures choker grapples, skidding grapples, slack pulling carriages, and radio released chockers.

Operational Specifications

The grapples are light weight and balanced, with hardened steel bushings and pins, large closing sheaves, replaceable cable wear inserts and all wear points lubricated. The cable wear guide is manganese steel.

The two-point cable grapples are for heel-boom loading, and right-of-way snorkeling. The three-point grapples are best applied with the long boom, and general multiple log handling.

Physical and Mechanical Specifications

Grapple Style Model	Sheave Dia. cm(in)	Cable Dia. cm(in)	Dimensions cm(in) Grap. Open.	Dimensions cm(in) Thick	Dimensions cm(in) Height	Weight kg(lb)
2 PNT L260	36 (14)	1.9-2.2 (0.75-0.875)	152 (60)	31 (12)	213 (84)	898 (1980)
L272	41 (16)	2.5-2.9 (1-1.125)	183 (72)	33 (13)	229 (90)	1007 (2220)
3PNT L360	36 (14)	1.9-2.2 (0.75-0.875)	152 (60)	51 (20)	213 (84)	1002 (2210)
L372	41 (16)	2.5-2.9	183 (72)	56 (22)	229 (90)	1157 (2550)

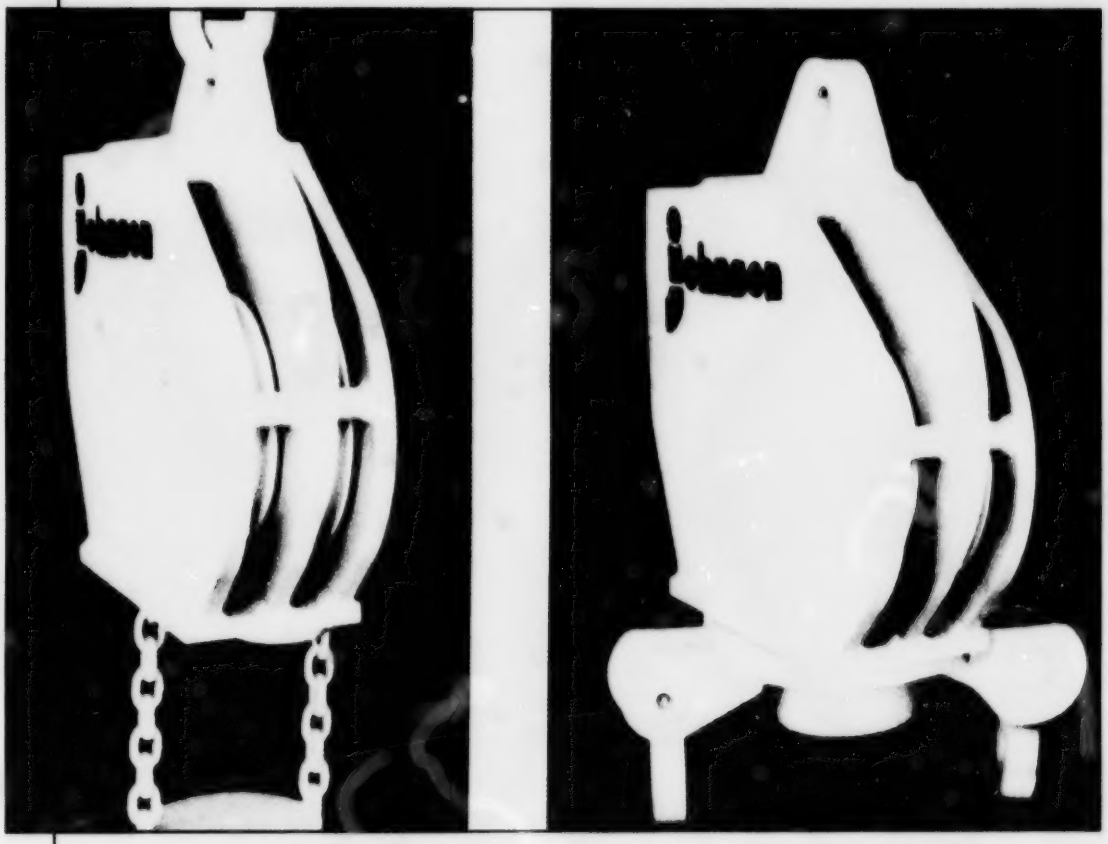
MANUFACTURER:

Johnson Industries Ltd.

8500 River Road
Richmond, B.C., V6X 1Y4
TEL: (604) 273-3737
FAX: (604) 273-9654
TELEX: 04-357554

JOHNSON SLACK PULLING CARRIAGE

Johnson carriage models SPC092C, SPC102C, SPC092G and SPC102G. Johnson also manufactures choker grapples (Models Y-116, Y-106H, Y106, Y-86H, Y-86), cable grapples (Models L260, L272, L360, L372), radio released chockers, and the cable grapples for skidders.



The Johnson slack pulling carriage. Standard dropline carriage (left) and combination dropline/grapple carriage (right)

Operational Specifications

The SP092G carriage is used with the Y76, Y86 and Y88 yarding grapples, and the SPC102G carriage is used with the Y96, Y106 and Y108 yarding grapples.

The slack pulling carriages are of the open self-cleaning design, with heavy duty roller bearings, low-friction pressure roller easy to reeve and service.

Physical and Mechanical Specifications

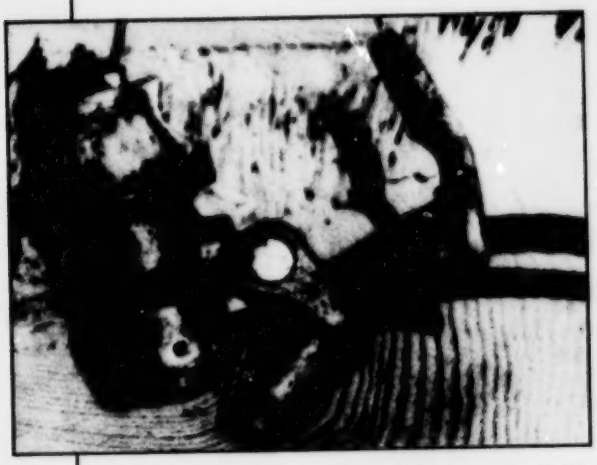
Model	Main Lines cm(in)	Drop Line cm(in)	Nominal Slack m(ft)	Dimensions Length cm(in)	Width cm(in)	Thickness cm(in)	Weight kg(lb)
SPC092C	1.6-1.9	1.9-2.2	38	66(26)	74(29)	25(10)	254(560)
SPC102C	2.2-2.5	2.5-2.9	46	81(32)	86(34)	61(24)	399(880)
SPC092G	1.6-1.9	1.9-2.2	38	66(26)	74(29)	91(36)	413(910)
SPC102G	2.2-2.5	2.5-2.9	46	81(32)	86(34)	107(42)	562(1240)

MANUFACTURER:

Johnson Industries Ltd.

8500 River Road
Richmond,B.C., V6X 1Y4
TEL: (604) 273-3737
FAX: (604) 273-9654
TLX: 04-357554

JOHNSON ELECTRONIC CHOKER SYSTEM



Johnson Radio Released Choker System uses up to nine remotely unhooking 1.6 cm (5/8 in) or 1.9 cm (3/4 in) chokers at one time.

The Johnson electronic choker system consists of: nine radio released chocker bells, one keypad-programmable transmitter installed in yarder cab, one yarder operator remote control keypad, one transmitter magnetic-mount antenna, one charger for overnight recharging on nine bells, cables and hardware for 2 hour installation, and complete installation, operation and service manual.

Operational Specifications

In the " two-handed " electronic choker system, the bell can be cocked and latched by the chokersetter before he sets the choker. This system is adaptable to most highlead cable yarding and ground skidding settings. It may also be used in combination with a grapple and slack-pulling carriage and a two or three man crew, by using the grapple wherever possible and using the electronic chokers to clean up the remaining wood.

Installation is a simple process requiring up to one hour to mount the transmitter and remote keypad in the operator's cab, tie the system into the machine's power supply, put the magnetic base antenna on the cab roof, program the chokers at hand into the transmitter and subsequently to check out the system.

Each choker bell has one of 256 distinct digital release codes programmable at the machine to suit up to nine chokers . As chokers are rotated, the ones in use must be programmed into the transmitter. For cable yarding, the chokersetters cock each bell, using either the choker nubbin or their thumbs, rotate the latch arm onto the latch pin in the choker body , find a good choker-hole and set each choker as if it were a conventional bell.

Particular Specifications

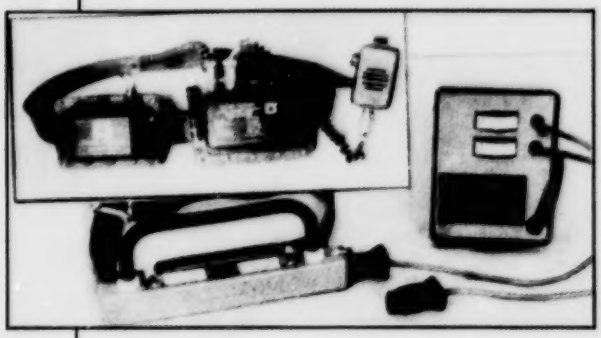
Chokers cm (in)	1.6 (5/8) or 1.9 (3/4)
No. chokers/system	Nine radio released choker bells
Electronic choker bells	High-strength alloy steel and Al.
Choker Bell Weight	Approx. 4.5 kg (10 lb)
Color coded	Individual, or simultaneous release
Number of choker release codes	256
Transmitter operating frequency	72.24 MHz
Accessories: Battery tester/booster Transmitter, field strength meter Bench receiver, range calibration jig	
Options: Johnson slack-pulling carriages Combination Johnson grapple/slack pulling carriage for a two-man yarding crane Portable programmable transmitter Mechanical puller/pusher and other tools for servicing the system	

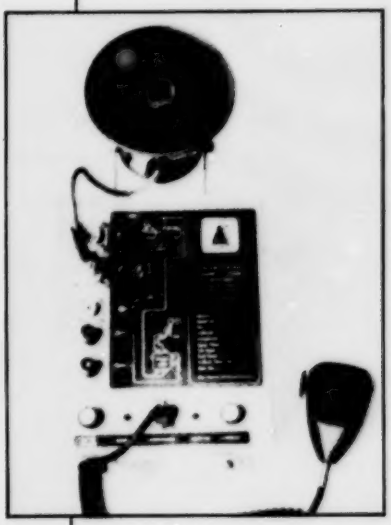
MANUFACTURER:

Johnson Industries Ltd.

8500 River Road,
Richmond, B.C., V6X 1Y4
TEL: (604) 273-3737
FAX: (604) 273-9654
TELEX: 04-357554

TALKIE TOOTER GRAPPLE RADIOWHISTLE SYSTEM





The Talkie Tooter UHF-4 Grapple Yarding System: Two-Way Radio System with the UHF-RT3 Transceiver, UHF-RT4 Transceivers, RT4 Battery Charger, Hook-up Cables, Speaker, RT4 Antenna and Battery Cable.

Talkie Tooter manufactures UHF-FM Radio Signalling & Control Systems. Complete UHF-2 (one way voice with whistles), and UHF-4 (two way voice with whistles) grapple yarder radiowhistle systems.
The Company also manufactures the AH15A 15 Watt Loud Hail System, and Personal Emergency Alarm Buddy System.

PRICE: Approximate 1988 for the UNF-2 System, $6,950.00; UHF-4 System, $11,095; AH15A Hail System, $550, all F.O.B. Vancouver, B.C.

Operational Specifications

With the UHF-4 grapple yarder radio system, the spotter wears a waterproof, belt mounted UHF-RT4 transceiver with a waterproof speaker/microphone. He receives voice transmissions, and transmits both voice and whistle signals. The yarder operator has a UHF-RT3 transceiver to receive voice and whistles, and transmit voice.

This system brings the reliability and safety of radio whistles to the two way radio communications in grapple yarding operations.

With the UHF-2 grapple yarder radio system, the hook-tender wears a belt-mounted transmitter with a hand-held microphone, for voice and whistle transmission. The yarder operator can receive the voice and whistle signals with the cab-mounted receiver. He talks back to the woods or landing with a high power loud hail. Optional switching is available to allow radio-transmissions to be broadcast over the loud hail for ground crew communication during rigging.

The AH15A 15watt loud hail system speeds up production with clear communication between the operator and ground crew on yarders, loaders, graders, trucks and other heavy equipment.

Particular Specifications

System UHF-4

One RT3 UHF Base Transceiver
Two RT4 UHF Portable Transceivers
Three RT4 Battery Packs
One Battery Charger
One 2D Speaker Assembly
One Magnetic Antenna
One RT3 Microphone
Three RT4 Speaker Microph.
Three Battery Cables
One Installation Kit

UHF-4

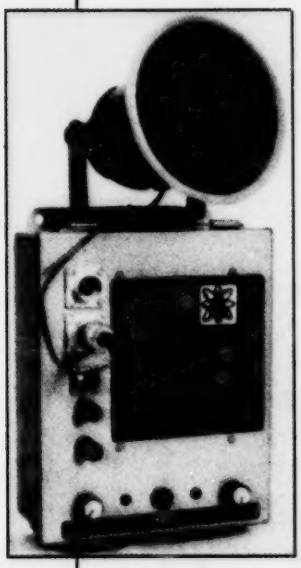
One R2 UHF Base Receiver
Two T2 UHF Portable Transmit.
One 2D Speaker Assembly
One Mag. Antenna Assembly
Two T2 Microphones
Three T2 Microphone Cords
One T2 Battery Charger
One Installation Kit

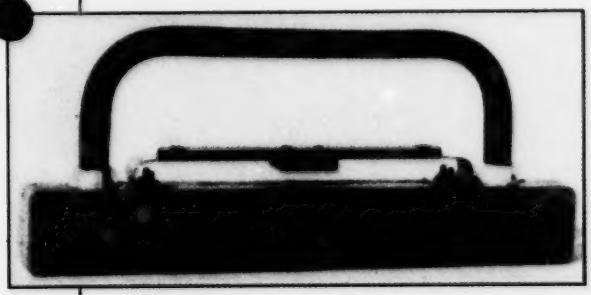
UHF-RT4, RT3 Transceivers
UHF-T2 Transmitter& UHF-R2 Receiver
Frequency, 450 to 470 Mhz
RF Power, 250 mW
AH15A 15 Watt hailing system
Range, m (ft) 153 (500)
Frequency Response, Hz 275 to 14 kHz
Sound Pressure Level, db 121 db @ 4 ft on axis with rated input @ 1000 Hz

MANUFACTURER:

Talkie Tooter (Canada) Ltd.
8264 St. George St.
Vancouver, B.C., V5X 3S5
TEL:(604) 327-8339
FAX: (604) 327-9779

TALKIE TOOTER VHF RADIOWHISTLE SYSTEMS





The Talki Tooter VHF radiowhistle system used for cable logging communication.

The Talkie Tooter model 2D Radio Whistle System consists of: one 2D receiver with speaker, two 3BC transmitters, one 110 volt battery charger, whistle cable, power cable, magnetic mount antenna, set of instructions.
Also available is the UHF-4 Talkie Tooter Grapple Radiowhistle System and the Talkie Tooter UHF-2 Grapple Yarding Communication System.

PRICE: Approx price (1988) for complete 2D Radio Radiowhistle System $4,950 F.O.B. Vancouver, B.C. Components price: 2D Receiver $2,350; 3BC Transmitter $1,275.

Operational Specifications

The "safety tone" prevents accidental cross-signalling between systems.

The system components are enclosed in rugged waterproof construction, with heavy duty cables.

The systems are available with voice communication for emergency situations, and are D.O.C. and F.C.C. approved. The 2D receiver is mounted inside the yarder cab, and uses a speaker and externally mounted magnetic antenna.

Particular Specifications

3BC Transmitter	
Power output	250 Milliwatts
Carrier frequency	150 to 180 MHz
Modulation	16F2
Size, cm (in)	3.8x10x28 (1.5x4x11)
Weight, g (oz)	481 (17)
Type 2 battery charger	110V AC, 60Hz, 30 Watts max.
2D VHF Receiver	
Power requirements	11 to 35 volts DC at approx 155 mA
Operating Temp., C	-30deg. to +60deg.

MANUFACTURER:

Talkie Tooter (Canada) Ltd.
8264 St. George St.
Vancouver, B.C., V5X 3S5
TEL: (604) 327-8339
FAX: (604) 327-9779

LOGGING AND TRANSPORT: PROCESSING
LOGGING AND TRANSPORT

Page

Processing 149

Delimbers

Denis Telescopic Delimbers 150
Denis One-Piece Boom (Roger) Delimber 151
Harricana Delimber and Delimber Processor 152
Pro Pac Delimber and Delimber Processor 153
Tanguay Model E200 Knuckle Boom Delimbing Attachment 154
Timberjack C-90 Delimber 155

Mobile Slashers

Mecfor Mobile Slasher 156
Pro Pac Mobile Slasher 157
Tanguay Mobile Slashers 158

Stationary Slashers

Tanguay Stationary Slashers 159

Woodfuel Processors

Nicholson Woodfuel Processor 160

Small Scale Operations, Firewood Processors

Beaver Woodeater 161
Cordking Compact Firewood Processor 162
Dejardins Firewood Processor 163
Hall's Wood Splitter 164
Dejardins P.T.O. Bench Saw 165
Super Split Log Splitter 166

DENIS TELESCOPIC DELIMBERS

The Denis Delimber features a telescopic boom, T, K or KS pivot head, equipped with delimbing grapple, and double topping knives with optional topping saw, measuring device and trimming butt saw.

Le Groupe Equipements Denis Inc. designs, manufactures and markets equipment for the forestry industry, from silviculture and harvesting, to wood handling and processing operations. It is recognized as one of the largest manufacturers of delimbers in North America.

The 3000 series delimbers are available in models to suit various types of forests. Model T for short trees of Eastern forests, model K for larger trees as found in the West, and model KS for forests with trees of various sizes.

PRICE: Model D-3200-T with 26in. funnel type base boom $72,450.00 U.S.

Model D-3300-T with 32 in. funnel type base boom $ 74,785.00 U.S.

F.O.B. St-Hyacinthe, Que. (1988)

Operational Specifications

The Denis Telescopic Delimber, a horizontal boom delimber type, delimbs trees on or off the road.

In addition to serving the usual purposes of delimbing, topping, sorting and piling, it also allows the trimming, and the slashing of the logs, depending on the options chosen by the customer.

The Delimber can be installed on all major makes of carrier (wheeled, track or truck mounted)

The Denis telescopic delimber comes with a kit of replacement parts. If other parts should be required, the Company guarantees delivery anywhere in Canada or U.S., usually within 24 to 48 hours. In addition, a trouble-shooting team is ready to solve problems on the site.

Particular Specifications

Overall Length	retracted 13.1 m (43 ft.) extended 21.64 m (71 ft.)
Overall Height	1.07 m (42 1/2 in.) (without pivot)
Overall Width	depends on model
Weight	4500 kg (10,000 lb.)
Delimbing Stroke	continuous 16.46 m (54 in.) unlimited with ring or deflector
Max. Delimbing Diameter	60.96 m (24 in.)
Topping Diameter	with knives 20.32 cm (8 in.) with saw 55.88 cm (22 in.)
Hydraulic Motor	depends on carrier
Working Pressure	
Denis Bolted Type Cylinders	
Carrier	all known makes
Options:	topping saw, measuring device, trimming butt saw

MANUFACTURER:

Le Groupe Equipements Denis Inc.,

5110 Beaudry Street,
St. Hyacinthe, Que.,
J2S 8A2
TEL: (514) 773-5454
FAX: (514) 773-3203
TELEX: 05-83051

DENIS ONE-PIECE BOOM DELIMBER

The Roger delimber features a one-piece boom, funnel-type pivot and swing away butt plate, head equipped with delimbing grapple and topping knife, with an optional topping saw, measuring device and trimming butt saw.

Le Groupe Equipements Denis Inc. designs, manufactures and markets equipment for the forestry industry, from silviculture and harvesting, to wood handling and processing operations. It is recognized as one of the largest manufacturers of delimbers in North America.

The one-piece resilient steel, boom delimber, also known as the Roger Delimber, is built to delimb large trees quickly.

Particular Specifications

Overall Length	15.84 m (52 ft.) 18.89 m (62 ft.)
Overall Height	1.21 m (48 in.) (without pivot)
Overall Width	depends on model
Weight	4600 kg (10,000 lb.)
Delimbing Stroke	continuous depending on length of boom unlimited with funnel
Funnel Diameter	66 cm (26 in.) 76.2 cm (30 in.)
Max. Delimbing Diameter	66 cm (26 in.)
Topping Diameter	with knife 15.24 cm (6 in.)) with saw 55.88 cm (22 in.)
Hydraulic Motor Working Pressure	depends on carrier
Denis Bolted Type Cylinders Carrier	all known makes

Operational Specifications

With varied boom and funnel sizes available, the Roger delimber can be adapted to specific operating conditions and type of operation. The funnel type pivot located directly under the carriage allows for speed when positioning and delimbing very tall trees. When delimbing small trees, a swing-away butt plate speeds up operations. The twin holding arms are simple to manoeuver and allow a tight grip on heavy trees. The topping knife is equipped with an automatic return feature to reduce the risk of operation errors, which often result in breakage of the trees.

With the purchase of a delimber, Denis offers on-site operator training, a kit of replacement parts, 24 to 48 hour delivery of other parts, on-site follow-up, with a trouble-shooting team always available on call to go on site.

PRICE: F.O.B. plant, St-Hyacinthe, Que., (1988)

Model D-322-M50	50ft. one-piece boom delimber	with 26 in. funnel type base, $73,270.00 U.S.
Model D-3300-M50	50ft. one-piece boom delimber	with 32 in. funnel type base boom $75,600.00 U.S.
Model D-3300-M60	60 ft. one-piece boom delimber	with 32 in. funnel type base boom $74,500.00 U.S.
Model D-3300-M60	60 ft. one-piece boom delimber	with 32 in. funnel type base boom $76,800.00 U.S.

MANUFACTURER:

Le Groupe Equipements Denis Inc.,

5110 Beaudry Street,
St-Hyacinthe, Que.
J2S 8A2
TEL: (514) 773-5454
FAX: (514) 773-3203
TELEX: 05-83051

HARRICANA DELIMBER AND DELIMBER PROCESSOR

The Harricana delimber-processor is an efficient one-man system, whose functions include butt-trim, delimb, top at measured diameter, buck to predetermined log lengths, sort and pile. A computerized counter coupled to a photocell provides digital readings and auto signal light for bucking.

Harricana models 1290-40 and 1290-50 delimbers, and the model 1290-50TP tree processor. Harricana offers a choice of standard 12.2 m (40 ft) and 15.2 m (50 ft) solid boom delimber models, as well as the standard 15.2 m (50 ft) delimber-processor.

The Company also manufactures a line of special-purpose wood handling attachments for logging and millyard.

Operational Specifications

Easily mounted directly on any carrier of 0.5 m^3 (¾ yd) capacity or more. The standard delimbers are available in 12 m (40 ft) and 15 m (50 ft) models. The shorter model HM 1290-40, gives big tree capacity on a small carrier, and is especially suited for large heavy limbed trees, where power of stroke is more important than length. The longer model HM 1290-50, is most productive in smaller diameter wood where most trees can be delimbed in a single stroke.

Like the limber, the tree processors handle stems up to 60 cm (24 in) diameter in any length, and can be mounted on any carrier 0.5 m^3 (¾ yd) capacity and up on tracks or wheels. It easily handles large, heavily limbed trees on a production basis, plus fast sorting and high piling in tight areas.

The Company provides a forestry package whereby complete or partial assemblies are available to convert excavators for use as logging equipment. This ensures correct mounting to the carrier of choice.

Physical Specifications

	Standard Delimber	Delimber Processor
Weight, kg (lb)	5000 (11,000) 5455 (12,000)	5910 (13,000)
Length, m (ft)	12.52 (41.1) 15.57 (51.1)	15.57 (51.1)
Height, m (ft)	1.98 (6.5)	1.98 (6.5)
Width, m (ft)	2.1 (7)	2.1 (7)

Mechanical Specifications

Capacity	60 cm (24 in) butt diam. No length limit	60 cm (24 in) butt diam. No length limit
Motor cc (in^3/rev)	745 (45) 935 (60)	935 (60)
Cylinders	5	6
Flow rate, L/min (lgpm)	151 (40)	151 (40)
Pressure, kPa (psi)	17225 (2500)	17225 (2500)
4 grab arms, 1 topping knife		4 grab arms, 2 saw bars

MANUFACTURER:

Harricana Metal Inc.,
P.O. Box 550,
Amos, Que., J9T 3A8
Tel. (819) 732-8381 Telex 057-46647
or also Delta, B.C., Tel. (604) 943-9692
Fax (604) 943-1565

PRO PAC DELIMBER AND DELIMBER PROCESSOR

The Pro Pac delimber is adaptable to most commercial carriers.

Pro Pac model 453 and 513 electronic delimber processors. Also available are the Pro Pac model PP42 and PP48 delimbers with 12.8 m (42 ft.) boom for heavy tree handling, and the 14.6 m (48 ft.) boom for single stroke delimbing.

Operational Specifications

A computerized system is available to set the length of logs to provide accurate log measurements.

The topping saw provides a fast clean cut of up to 208 mm (20 in.) in a few seconds.

Models PP42 or PP48 may be converted from an upright working position to a horizontal transportation position, in a few minutes.

Physical Specifications

Model	Delimber Processor 453		513		PP Delimer PP42		PP48	
Length m (ft.)	138	(45.3)	156	(51.3)	138	(45.3)	156	(51.3)
Width cm (in.)	1219	(48)	1219	(48)	914	(36)	914	(36)
Height cm (in.)	1219	(48)	1219	(48)	1219	(48)	1218	(48)
Boom Length m (ft.)	128	(42)	146	(48)	128	(42)	146	(48)
Weight* kg (lb.)	7156	(16,700)	8045	(17,700)	5454	(12,000)	5909	(13,000)
Maximum Grapple Opening cm (in.)	68	(27)	68	(27)	68	(27)	68	(27)
Maximum Delimbing Diameter cm (in.)	61	(24)	61	(24)	61	(24)	61	(24)

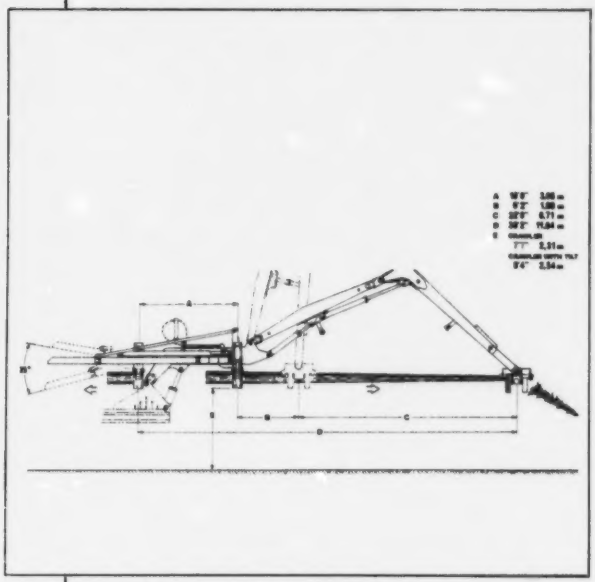
Delimber attachment only

MANUFACTURER:

Pro Pac Industries,

415 route Kennedy,
Liniere, Que., G0A 1J0
TEL: (418) 685-2050 FAX: (418) 685-3296

TANGUAY MODEL E200 KNUCKLE BOOM DELIMBING ATTACHMENT



The Tanguay Model E-200 delimber/processor attachment.

Tanguay are manufacturers of slashers, log loaders, delimbers, feller bunchers and attachments. In addition to the Tanguay model E200 delimbing attachment, also available is the Tanguay DL221SM delimber, with optional "Denis KS" or "Harricana" delimbing attachments.

Mechanical Specifications

Operating Pressure 1 757 750 kg/m² (2500 psi)
Options
Processing device , including measuring device with digital readout in the operator's cab, two chain saws on the delimbing head, one for topping and one for butt trimming and diameter indicator on delimbing head.

Operational Specifications

This delimbing/processing device offers flexibility. It can operate as a loader, and lift trees, even if they are very close to the unit. Small or large trees can also be processed easily at basically the same speed.

Its limited number of moving parts allow for superior mechanical availability and minimum maintenance.

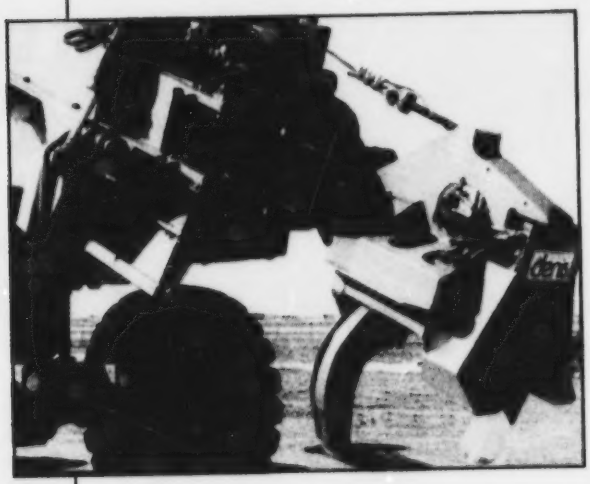
Particular Specifications

A m (ft.)	3.05	(10.0)
B m (ft.)	1.88	(6.17)
C m (ft.)	6.71	(22.0)
D m (ft.)	11.64	(38.17)
E m (ft.)(Crawler)	2.31	(7.58)
Delimbing Head	Two way delimbing knives 152 mm (6 in.)	
Delimbing Force	6350 kg (14,000 lb.)	
Delimbing Length	Total stroke of boom and rear sliding extension is 9.75 m (32 ft.)	
Head Capacity	560 mm (22 in.) diameter	
Tree Holding Capacity	660 mm (26 in.) diameter	
Weight	4990 kg (11,000 lb.)	

MANUFACTURER:

Tanguay Industries Inc.,
2997 Watt St.,
Quebec, Que.,
G1X 3W1
TEL: (418) 658-1315
FAX: (418) 658-6747
TELEX: 051-31676

TIMBERJACK C-90 DELIMBER



Timberjack C-90 rubber-tired mobile delimber. Replaces slow track-mounted delimbers, and can be economically roaded up to 15 miles to serve several logging sites.

Timberjack is a recognized name in the skidder industry, as well in the design and manufacture of mechanical logging equipment. Timberjack produces: cable skidders, grapple skidders, clambunk skidders, log forwarders, mobile delimbers, feller bunchers and mining vehicles. The TJ C-90 is an articulated, rubber-tired, mobile delimber incorporating the Denis delimber attachment.

Particular Specifications

Overall Length	13385 mm (527 in.)
Maximum Width	3505 mm (138 in.)
Height	4623 mm (182 in.)
Ground Clearance	635 mm (25 in.)
Weight	31 752 kg (70,000 lb.)

Mechanical Specifications

Engine	GM 4-71N65, 116 kW (155 HP) @2100
Tires	29.5 x 25 (28 PR)
Cab	Fully enclosed, heated
Delimber	"Denis" Model T

Operational Specifications

There are three "Denis" delimbing attachments, which is chosen depends on the length of the trees. All have 610 mm (24 in.) butt capacity, and provide single step delimbing to 17.1 m (56 ft.). All can top to 152 mm (6 in.) and can delimb multiple smaller stems.

Model T: Offers maximum production in trees less than 17.1 m (56 ft.) merchantable length. Butts are aligned for easy scaling, slashing and loading. A deflector allows unlimited length delimbing.

Model K: Is the choice where trees are consistantly over 17.1 m (56 ft.). Here the fixed butt plate is replaced with a retaining ring which allows fast cycle time in long wood.

Model KS: With both a retaining ring and hydraulically controlled butt plate, is preferred where tree sizes vary from under 56 ft. to over 56 ft. This would be the best choice for a machine in mixed stands and for one that will be moved to different areas.

The Timberjack C-90 carrier is a four wheel drive 116 kW (155 HP) off-road production vehicle. Large tires, high ground clearance, wide track, long wheelbase, articulated steering and an oscillating powerframe axle combine to provide the mobility required around the delimbing site and over unimproved roads. The wheeled delimber has been shown to have advantages over the tracked models particularly in its relocation time between sites as well as in its maintenance costs.

MANUFACTURER:

Timberjack Inc.,

925 Devonshire Ave.,
P.O. Box 160,
Woodstock, Ont.
N4S 7X1
TEL: (519) 537-6271
FAX: (519) 539-4750
TELEX: 067-74118

MECFOR MOBILE SLASHER

Mecfor M-7 Mobile Slasher with articulated chassis, for enhanced off-road manoeuvrability.

Mecfor manufactures the standard model M-7, and the 4 x 4, also model M-7 with automatic feed conveyor.

Particular and Mechanical Specifications

Hydraulic Saw Diameter, cm (in)	152.4 (60)
Slashing range, m (ft)	1.3 (4.125) to 5.1 (16.67)
Engine	Diesel: John Deere, Cummins, Caterpillar
Transmission	Powershift, 4-speed
Brakes	Automatic actuated park
Rear wheels	23.5 x 25
Articulated Chassis	
Electrical	24 Volts, with 65 amp alternator
Tare Weight, kg (lb), Standard	21 546 (47,500)
Auto feed	22 453 (49,500)

Options
- Hydraulic front wheel drive
- Automatic, 107 cm (42 in) feed conveyor
- Floatation tires
- Choice of diesel motors
- Measuring system
- Ejection system

The loader cabin tilts for easier transport on tri-axle float.

MANUFACTURER:

Mecfor Inc.

452 Principale
St-Prime, Que., G0W 2W0
TEL: (418) 251-8283 FAX: (418) 251-8259

PRO PAC MOBILE SLASHER

Pro Pac mobile slasher, working at a landing, with an integrally mounted hydraulic loader.

The Company manufactures delimbers and delimber processors, as well as mobile slashers.

Particular Specifications

Overall Length mm (ft)	8738	(28.67)
Maximum Width mm (in)	2590	(120)
Height mm (ft)	3048	(10)
Hydraulic Pressure System Depends on the carrier		
Total Weight kg (lb)	3629	(8000)

Operational Specifications

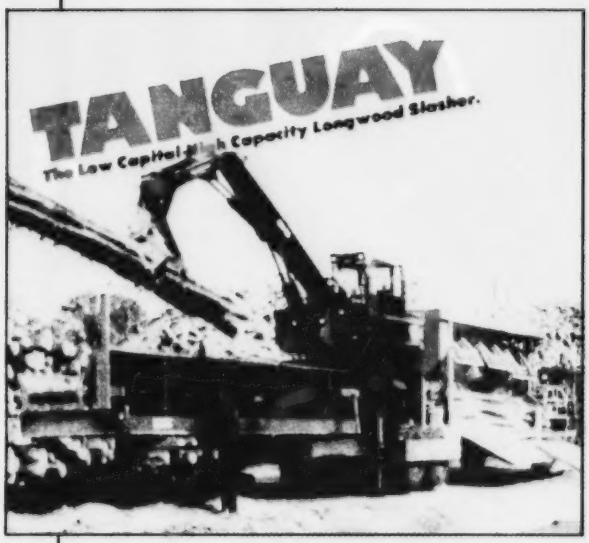
Slasher circular saw of 1524 mm (60 in) diameter, with carbide teeth. The slasher is designed to slash 1.2 m (4 ft), 2.4 m (8 ft), 3.66 m (12 ft), 4.9 m (16 ft) logs.

MANUFACTURER:

Pro Pac Industries,

415 route Kennedy, Liniere, Que., G0A 1J0 TEL: (418) 685-2050 FAX: (418) 685-3296

TANGUAY MOBILE SLASHERS



The Tanguay slasher is designed to meet customer specifications. The diagram shows Tanguay model CC-5100 tree-length, mobile slasher, using the multiple swing saw system to cut two, three, or up to four pulpwood lengths.

Tanguay are manufacturers of slashers, log loaders, delimbers, feller bunchers and attachments.

Slashers are available in mobile models CC125-B, TS200, TS250, CC-5100, and also in the stationary model CC-6100.

Operational Specifications

The model TS 250 is a new slasher combining the versatility of a small one man slasher and the efficiency of a large custom built unit with roller case conveyor. It offers a semi-automated system operating one complete slashing cycle. This is done while the operator is unloading and reloading the conveyor.

System production depends on the type of wood processed and the sorting requirements. Nominal design capacity is based on 18 to 20 cords per hour in 2590 mm (8.5 ft.) pulpwood (theoretical).

The CC-5100 Tree Length Slasher uses multiple swing saw systems to cut two, three or up to four pulpwood lengths. This allows the slashing of wood within a minimum period of time because of the fast action of the swing saw and kicker mechanism. The rugged design gives a high mechanical availability, together with high performance. Wide rollcase conveyor with independent drives assures a constant feed to the slasher. Outfeed system is customized as per customer's requirements.

Mechanical Specifications

Model	TS200	TS250	CC125-B
Engine	Cat 3208	Cat 3208DIT	Cat 3208
Power kW (HP)	147 (197)	168 (225)	95 (128)
Lift Capacity kg (lb.) at 7.62 m (25 ft.) reach	5440 (12,000)	5440 (12,000)	3180 (7000)
Hydraulic System Operating Pressure kPa (psi.)	17237 (2500)	17237 (2500)	17237 (2500)
Estimated Weight kg (lb.)	29050 (64,000)	39475 (87,000)	17800 (39,500)
Controls	All loader functions are operated by two hydraulic joysticks. Two electric pedals control the saw tilt and butt plate. Saw 1524 mm (60 in.) diameter, 40 carbide tipped teeth driven at 900 RPM by a hydraulic motor.		

Model	CC-5100
Overall Transport Width, m (ft.)	3.8(12.6)
Engine. kW (lb.)	3306-T Cat 186(250) @ 2200 rpm
Alternate	3406-DITA 280(375) or more power
Infeed loader Capacity, kg (lb.)	T-14030-CH 6350(14000) at 9.1m(30ft)reach
Swing Saw Slashing Mech., mm (in.)	1524(60) diam. saws, hyd. power

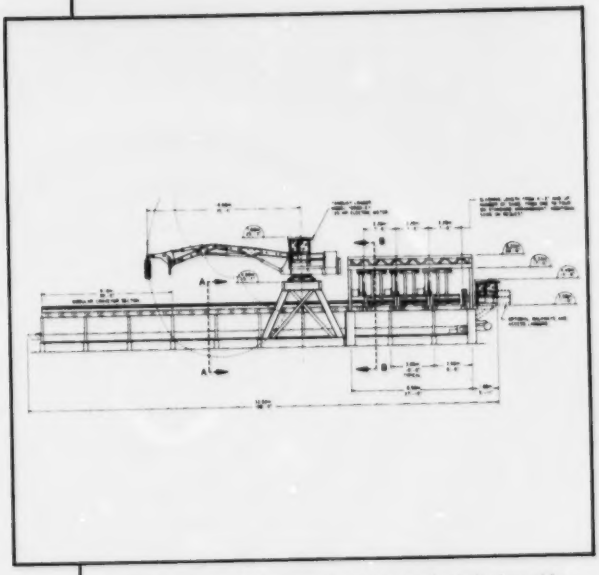
2 or 3 saws/pulpwood length from 1270 mm (50 in) up to 3048 mm (120 in) as per customer requirements

Optional	T-16030-CH loader, with TL-8 grapple, rotation limited to 300 deg.

MANUFACTURER:

Tanguay Industries Inc.,
2997 Watt St.,
Quebec, Que.,
G1X 3W1
TEL: (418) 658-1315
FAX: (418) 658-6747
TELEX: 051-31676

TANGUAY STATIONARY SLASHERS



The Tanguay stationary slasher is custom designed to meet customer specifications. Diagram shows Tanguay model CC-6100 stationary slasher.

Tanguay are manufacturers of slashers, log loaders, delimbers, feller bunchers and attachments.

The high capacity, custom design, stationary slasher, model CC-6100.

Operational Specifications

The Tanguay slasher is available as a one man operation, or in the higher production two-man configuration. It can also be fed with a live deck.

Mechanical Specifications

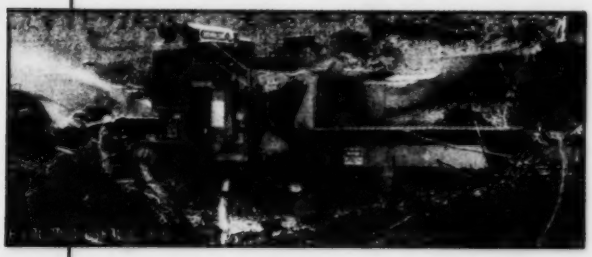
Infeed conveyor,cm(in)	152(60) wide rollcase,modular hyd. drive with RC-140 chain transfer
Saws,cm(in)	183(72) diam., hyd. driven swing type arm, hyd. actuated
	Up to 4 saws on stand. arrangements
Power unit;Electric	Subject to number of saws
Infeed loader,	T-16030 electric, 93.2kW(125hp)
Lifting Capacity kg(lb)	7258(16,000) at 9.1m(30ft)
Max. reach,m(ft)	STD: 10.7(35) OPT: 12.2(40)
Grapple capacity,m^3(cd)	3.6(1) tree lengths
Options	
Feed deck	
Debris conveyor	
Auto. slash syst.	

Smaller version: 106.7(42) rollcase conveyor and 152.4 cm(60in) dia. saws

MANUFACTURER:

Tanguay Industries Inc.,
2997 Watt St.,
Quebec, Que.
G1X 3W1
TEL: (418) 658-1315
FAX: (418) 658-6747
TELEX: 051-31676

NICHOLSON WOODFUEL PROCESSOR



The Nicholson woodfuel processor: uses brush to solid wood(ie.large logs, whole trees)

Nicholson produces mobile chipper and chip conveying systems, producing high quality wood fuel chips, and acceptable quality pulp chips.

Operational Specifications

Fuel and pulpwood chips are produced from the broadest range of materials using a single, high volume machine.

1. Peak production capacity,kg(green tons)/hr. 60 960(60) (Branches and orchard prunings)
2. Production up to 121 920 kg (120 green tons)/hr. (Large trees, whole trees)

A unique feature of the fuelwood processor is its ability to produce fuel chips in their final required shape. Chip size is controlled by a baffle screen set on the underside of the drum.

The low conveyor can be loaded by many types of equipment.

Particular and Mechanical Specifications

Conveyor length,m(ft)	5.8(19)
Conveyor width,mm(in)	1626(64)
Chipper opening,cm(in)	162.6(64) x 91.4(36)
Power,kW(hp)	460(617) GM Detroit 12V92T diesel
Powered crush roll with air cyl. pressure control	
Max. whole log diam.,cm(in.)	softwood 46(18) hardwood 40.6(16)
Feed rate,m(ft)/min.	14(46)

MANUFACTURER:

Nicholson Manufacturing Ltd.

327 Harbour Road,
Victoria, B.C.
V9A 3S2
TEL: (604) 385-6757
FAX: (604) 385-6454
TELEX: 04-97215

BEAVER WOODEATER

Beaver Woodeater set up with fully-portable live deck, and standard fire wood conveyor.

The Beaver Woodeater comes in five models: the Beaver Cub, Beaver, Super Beaver III, Super Beaver II, and the Otter.

Operational Specifications

Standard pick-up trucks are normally required to transport the processing equipment. The Beaver and Otters come equipped with hitches, electric brakes, and trailer lights.

Winches: A winch package is offered with the Beaver Woodeater systems only. It allows the machine to be faced into a log deck and the logs to be winched straight in.

Multi-Split Knives: A multitude of knife arrangements are available, to match log species with market demands.

The new Beaver Cub Super Beaver III firewood processors, are applicable for both production operations, or for part-time users. They are simple to operate and less expensive to use.

Price: Approx 1988

Firewood Conveyors 20′ std.	$4850
30′ std.	$5850
30′ x-wide	$7300
Live Decks-Fully Portable	
2 arms - 20′ x 8′	$5500
3 arms - 8 x 20′	$7000

	Beaver Cub	Super Beaver III	Otter
Price/unit	$24,900.00	$37,500.00	$72,500.00
Winch & Fairlead	$1,375.00	$1,625.00	$N/A
Saw Bars	$140	$140	$375
Sprockets	$85	$85	$150

Physical Specifications

Model	Beaver Cub	Super Beaver III	Otter
Log Size Capacity mm (in.)	457 (18)	508 (20)	914 (36)
Weight kg (lb.)	1451.5 (3200)	2495 (5500)	4536 (10000)
Trailer Braking	Electric	Electric	Electric
No. of Axles	single axle	double axle	triple axle
Saw Chain	.404 pitch	.404 pitch	.75 pitch
Firewood Lengths mm (in.)	All models cut 305 (12) to 610 (24) lengths		

Mechanical Specifications

Model	Beaver Cub	Super Beaver III	Otter
Engine Standard	13.4kW(18HP)B&S(gas)	27.6kW(37HP)Kubota (diesel)	48.4kW(65HP)Kubota (diesel)
Optional:			
3 Phase Elec.	N/A	$ 3125 less	$ 4400 less
25 HP Onan (gas)	$ 1200	N/A	N/A
25 HP Kubota (diesel)	$ 3125	N/A	N/A
Split	4 way	8 way	Sized to suit
Electric Eye	N/A	Std.	Std.
Rams 3.5x30 std.	1 pc.	2 pc.	2 stage
4x30 opt.	$ 190	$ 400	splitting system

MANUFACTURER:

Eaglewood Industries Ltd.,
P.O. Box 609,
Salmo, B.C.
V0G 1Z0
TEL: (604) 357-2414

CORDKING COMPACT FIREWOOD PROCESSOR

Compact Cordking Mobile Firewood Processor;Circular Slasher with 10-Way Splitter

Physical Specifications

Trailer:	Tandem axle, 2.6 m (8.5 ft) wide, 6.7 m (22 ft) long, 3 m (10 ft) high
Trailer Weight:	5080 kg (5 t)
Saw:	137 cm (54 in) diameter, 4-6 gauge with steel teeth (Style 2-1/2)
Live Deck:	2.4 by 3.1 m (8x10 ft)
Conveyor:	4.9 m (16 ft) long

Mechanical Specifications

Engine:	56Kw(75 Hp)diesel or PTO driven
Hydraulic Oil Tank:	416 L(110 US Gal.)
Splitter:	10 - way standard, 35500 kg (35 t), 6-8 second cycle
Options:	61 cm (24 in.) in-feed conveyor, custom splitter blades rear stabilizer jacks, solid state automatic controls, 6.1 to 12.2 m (20 to 40 ft) off-loading conveyor, carbide saw teeth, hydraulic trailer brakes

Operational Specifications

Cordking Mobile Firewood Processor with a capacity of 15.2 to 58.4 cm (6 to 23 in) log diameter, and 30.5 to 61.0 cm (12 to 24 in) block lengths.

The infeed conveyor will handle logs up to 9.1 m (30 ft) in length. Folding live deck is present for ease of mobility, as well as 5.9cm (2 5/16 in) ball coupler.

Anticipated production is as follows:

Log Diam. cm(in)	M^3 / Hour @ 65 % Efficiency	Cords/Hour*
20(8)	5.7	2.0
25.4(10)	10.9	3.0
30.5(12)	15.2	4.2
35.6(14)	21.4	5.9
40.6(16)	28.3	7.8
45.8(18)	35.5	9.8
50.8(20)	46.4	12.0
55.9(22)	52.6	14.5
61.0(24)	63.1	17.4

MANUFACTURER:

Fusiontech & Machine Inc.

3 Greig St.
Smith Falls, Ont.
K7A 1L9
Tel: (613) 283-9106
FAX (612)283-0918

DESJARDINS FIREWOOD PROCESSOR

Desjardin Firewood Processor using P.T.O. from a tractor with a minimum power of 33.6 kW (45 hp).

Desjardins Firewood Processor, P.T.O. powered type.

PRICE: Approx. $14,000.00 F.O.B. St-Andre, Que. (1988).

Operational Specifications

This system can be operated by one man. Depending upon wood size, system production is approximately one cord per hour.

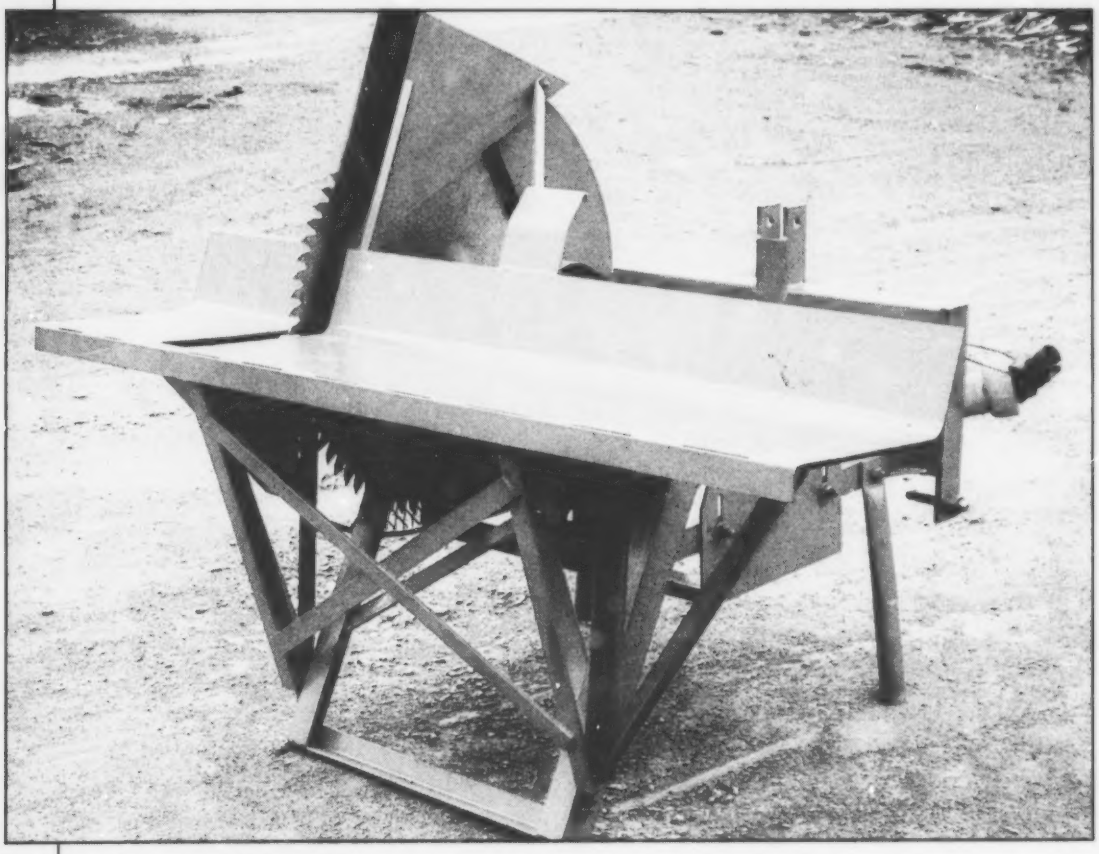
Particular and Mechanical Specifications

Dimensions	78 x 84 in x length variable according to system set-up
Weight	2900 to 3900 lb depending on set-up
Power	P.T.O. with a minimum of 33.6 kW (45 HP)
Saw	864 mm (34 in) diameter with teeth inserts
Conveyor	406 mm wide x 4.6 m long (16 in wide x 15 ft long)

MANUFACTURER:

Les Industries Desjardins Ltee,
79 rue Principale, St-Andre
Quebec G0L 2H0
TEL: (418) 493-2114 FAX: (418) 493-2432

DESJARDINS P.T.O. BENCH SAW



Desjardins P.T.O. bench saw.

Desjardins are manufacturers of farm and sawmill equipment and attachments.

PRICE: Approx: $1495.00 F.O.B. St-Andre, Que. (1988)

Particular and Mechanical Specifications

Dimensions	1854 x 1321 x 1067 mm high (73 x 52 x 42 in. high)
Weight	170 kg (375 lb.)
Power requirements	18.6 kW (25 HP)

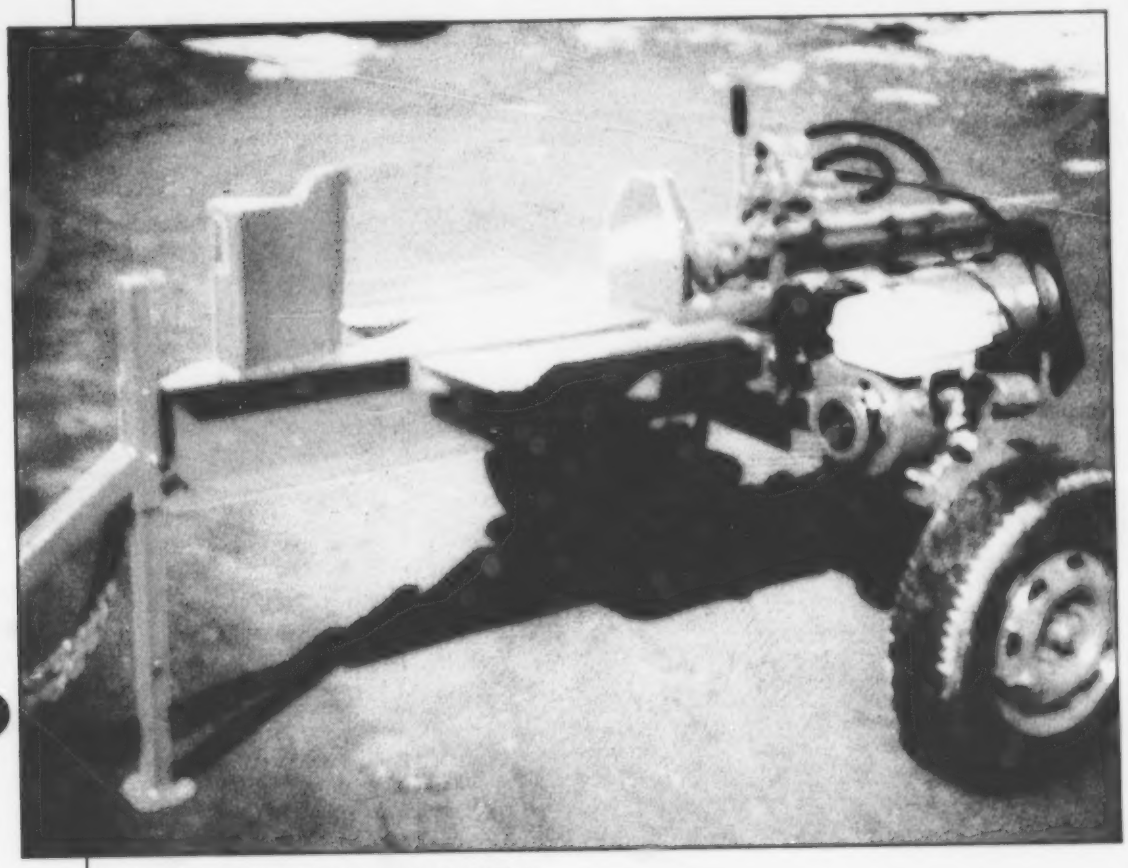
Attaches to a three point tractor hitch with P.T.O.
Cuts sticks up to 408 mm (16 in.) in diameter

MANUFACTURER:

Les Industries Desjardins Ltée,

79 rue Principale, St-Andre
Quebec, G0L 2H0
TEL: (418) 493-2214 FAX: (418) 493-2432

HALL'S WOOD SPLITTER



Hall's log splitter with three-point hitch to facilitate movement to site.

Three-point hitch models are also available.

PRICE: Approx. $ 1995.00 F.O.B. Centerville, N.S.,(1988)

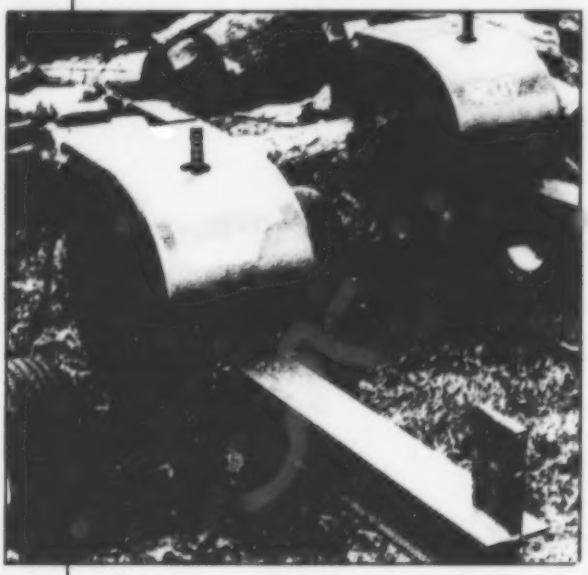
Particular Specifications

Splitting Force, kg (tons)	16256 (16)
Firewood Lengths, mm (in.)	max. 610 (24)
Engine	3.7kW(5 HP) Honda
Hydraulics	2 stage pump with 10 second return time
Clearance	508mm (20″)
Options	Four way cutting blade 762mm (30″) cylinder

MANUFACTURER:

Hall's Maritime Welding Ltd.,
RR#2 Centreville,
King's Co., N.S.
B0P 1J0
TEL: (902) 678-6559

SUPER SPLIT LOG SPLITTER



Splitter is available with a 3 HP gasoline or a 1 HP electric motor. Motors interchange in5 minutes using household tools

Available in both the 100, 200 regular and super duty models.

Operational Specifications

Super Split utilizes the rack and pinion flywheel-drive principle to produce a two-second cycle and one half-second recovery time. The two-second cycle is up to 15 times faster than hydraulic splitters. Interchangeable gas or electric motors are quiet and easy to start. Case hardened rack and gear ram develops an impact force of 9.072 to 12.7 tonnes (10 to 14 tons).

The Super Split principle is based on the kinetic energy stored in a revolving flywheel firmly secured to a one piece shaft gear providing a tremendous power advantage.

PRICE

Model	Engine	Price (1988)
100	1 HP electric	$ 2150.00
200	3 HP B&S gas	$ 2150.00
100HD	1 1/2 HP electric	$ 2425.00
200HD	5 HP B&S 1/C gas	$ 2425.00

Particular Specifications

Overall Length mm (in.)	1829 (72)
Width mm (in.)	711 (28)
Overall Height mm (in.)	864 (34)
Weight kg (lb.)	127 (280) (approx.)
Shipping Weight kg (lb.)	134 (295) (approx.)
Wedge Height mm (in.)	152 (6)
Log Length mm (in.)	648 (25 1/2)
Wheels	10" x 4" hard rubber
Optional	Wide flotation 15X6X6 4.80x8 road wheels trailer coupling for 1 7/8 ball

Mechanical Specifications

Cycle Time	2 sec. (approx)
Recovery Time	1/2 sec. (approx.)
Split Force tonne (tons)	9.072 (10) - 12.7 (14)
Power Options: Standard	3 HP Briggs & Stratton gas engine or 1 HP electric 110/220 v AC
Super Duty	5 HP Briggs & Stratton gas engine or 1 1/2 HP electric motor
Split Cycle Action	Lift handle to engage Cycle interruptable

MANUFACTURER:

Super Split Industries,
474 Bank St.,
Ottawa, Ontario
K2P 1Z3
TEL: (613) 235-5111

LOGGING AND TRANSPORT: LOADING
LOGGING AND TRANSPORT

Page

Loading 167

Log Loaders, Hydraulic Boom Type
- Koehring Loaders 168
- Tanguay Log Loaders 169
- Rotobec Boom Loaders 170

Log Loaders, Front-End Type
- Comact Front-End Loaders 171

Log Loaders, Pedestal Type
- Tanguay Pedestal Loaders 172

Log Loaders, Cable Type
- Cypress Log Loader 173

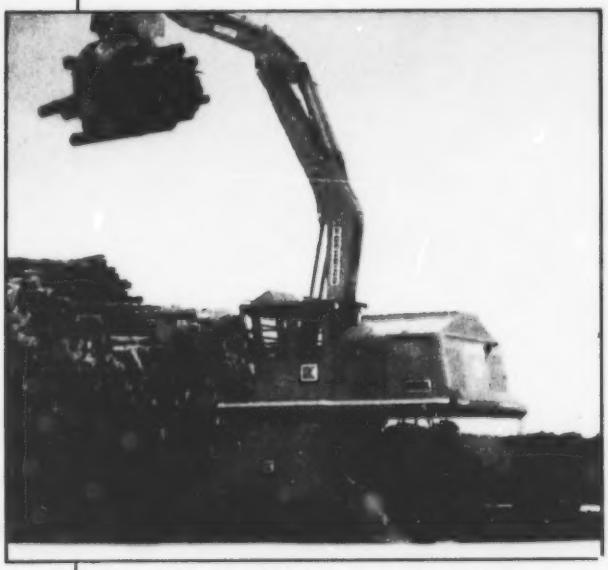
Loader/Forwarder
- Koehring K4 Loader/Forwarder 174

Loader Attachments, Rotating Grapples
- Harricana Butt'N Top Rotating Grapple 175
- Harricana Paralift Boom and Grapple 176
- Rotobec Continuous Rotating Grapples 177
- Rotating Grapples, Tree-Length and Pulpwood 178
- Weldco-Beales Power Grapples with 360 Degree Rotation 179

Loader Attachments, Front-End Quick Coupler Systems
- Balderson Front-End Quick Coupler 180
- Vallee Front-End Quick Coupler System 181

Loader Attachments, Front-End Forks, Buckets and Woodchip Buckets
- Balderson Tree-Length Log Forks 182
- Balderson Woodchip Bucket Attachments 183
- Weldco-Beales Log and Pallet Forks 183
- Weldco-Beales Loader Buckets 185

KOEHRING LOADERS



The Koehring K525 loader, with 1.5 cord shortwood grapple, and optional three-piece boom.

Koehring Canada is a manufacturer of pulp mill, logging and construction machinery. Tree harvesting machinery consists of the following product line: Tree harvesters, feller forwarders, feller skidders, feller bunchers, log load-aligner, log loading cranes and yarders.

Koehring loaders are available in K525 wheeled, or 630 tracked models. Both available in shortwood, or tree-length configurations.

Operational Specifications

Independent hydrostatic drive system front and rear, with two-speed power shift transmission, plus three shift, on-the-go hydraulic ranges.

Dedicated piston swing system and hydraulic circuit design allows simultaneous operation of all machine functions.

Optional fire suppression system is available on model 630; with (2) or (4) 14kg (30lb) tank, 10 nozzle dry chemical powder system with (5) sensors in critical areas - automatic discharge.

Particular Specifications

Model	K525	630
Overall Length mm (ft.)	8179 (26.8)	5490 (18.0)
Overall Width mm (ft.)	4140 (13.6)	3660 (12.0)
Height(top of cab) mm (ft.)	4115 (13.5)	4520 (14.8)
Track mm (ft.)	3404 (11.2)	2920 (9.6)
Ground Clearance mm (ft.)	580 (1.9)	580 (1.9)
Horizontal Reach (ground) mm (ft.)	9754 (32.0)	9754 (32.0)
Weight kg (lb.)	36061 (79,500)	37200 (82,000)

Mechanical Specifications

Model	K525	630
Engine	Cummins 6CT8.3 rated at 154kW(207HP) @ 2000 RPM Optional Cat 3280T rated at 200 HP @ 2000 RPM	Cummins 6CT8.3 rated at 154kW(207HP) @ 2100 RPM
Cab	Both machines are fully sound and temperature insulated.	
Grapples:		
Tree Length	Koehring butt and top tree-length grapple.	
Shortwood	Various types available.	
Boom	Optional shortwood three-piece boom 9754mm (32') reach allows close-in piling capability.	

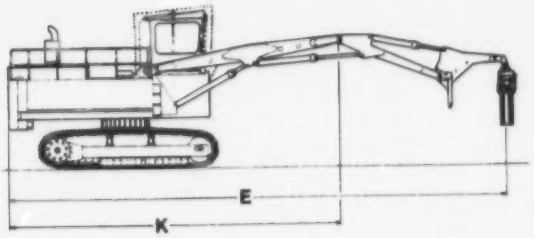
MANUFACTURER:

Koehring Waterous, Div. of Timberjack Inc.,
P.O. Box 490,
Market St. South,
Brantford, Ont.
N3T 5P6
TEL: (519) 752-6571
FAX: (519) 752-3413
TELEX: 061-81117

TANGUAY LOG LOADERS

"Y" Type, 10.6 m/35 feet of reach.

E	46'0"	14.02 m
K	31'1"	9.47 m



The Tanguay model LL231, tracked log loader with Caterpillar D7L undercarriage, with heavy duty guarding.

Tanguay are manufacturers of slashers, log loaders, delimbers, feller bunchers and attachments.

Log loaders are available in LL231 tracked types, or 12025 AC, and LL228 wheeled types.

Optional Equipment

Booms with optional sticks for butt'n top (BT), heel type (Y), and short wood (S) loading. Different grapples from various manufacturers for all applications ie. Tanguay TL-3 grapple, Rotobec 584 grapple.

Heavy duty guarding package, including FOPS canopy and side window screens. Main and stick boom cylinder guards. Central fire suppression system. High visibility cab with rear sloping windshield. The air conditioner is not available with FOPS canopy.

Particular Specifications

Model	LL231	LL228	LL12025 AC
Height mm (in.)	4570 (180)	4670 (184)	4100 (149)
Width mm (in.)	3560 (140)	2620 (103)	4242 (167)
Ground Clearance mm (in.)	650 (25)	460 (18)	400 (16)
Weight, kg (lb.)	38465 (84,800)	32545 (71,750)	21778 (48,000)

Mechanical Specifications

Model	LL231	LL228	LL12025 AC
Engine	Cat. 3306	Cat. 3206	Cat. 3208 NA
Power	175(235) @ 2200 RPM	131(176) @ 2600 RPM	119(160) @ 2400
Drive	2 speed forward hydraulic drive	6 speed forward and reverse transmission	2 speed hydrostatic drive
Weight, kg (lb.) (Weight does not include FOPS or grapple)	38465 (84,800)	32545 (71,750)	21778 (48,000)

Operational Specifications

Model	LL231	LL228	LL12025 AC
Lift capacity, kg (lb.)*	21000 (46,500)	21000 (46,500)	10726 (23,640)
at a reach of m (ft.)	3.65 (12)	3.65 (12)	4.57 (15)

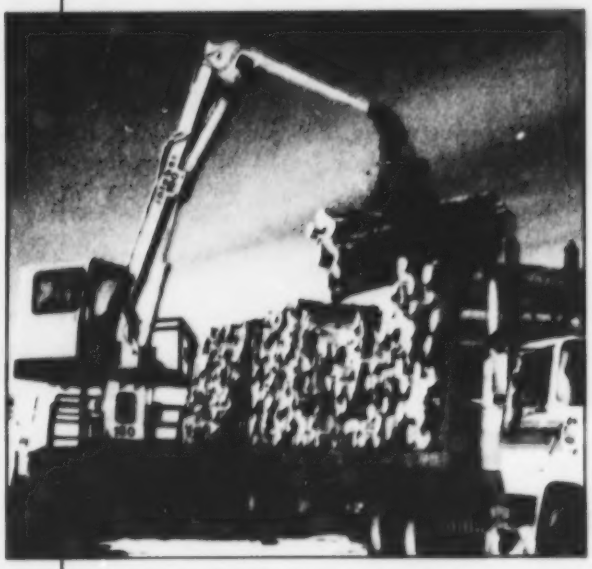
*(Lift capacity is net at end of boom, weight of grapple is to be deducted. Based on standard Y type heel boom.)

*(S and BT capacities are slightly higher.)

MANUFACTURER:

Tanguay Industries Inc.,
2997 Watt St.,
Quebec, Que.
G1X 3W1
TEL: (418) 658-1315
FAX: (418) 658-6747
TELEX: 051-31676

ROTOBEC BOOM LOADER



Rotobec Model 120 truck-mounted boom loader.

Rotobec model 120 truck-mounted, boom loader. The Company also specializes in designing and manufacturing continuous rotation grapples, pulpwood grapples, log grapples, log/pulpwood grapples and rotors.

Operational Specifications

Often mounted by contractors on low cost used trucks, of adequate capacity, this loader is particularly mobile, enabling the loading of scattered loads of pulpwood and/or logs from landings or woodlots.

Particular Specifications

Boom reach,m(ft)	7.01(23)
Height reach* ,m(ft)	10.2(33.5)
Boom structure,mm(in)	178x229(7x9) high resist. steel
	689 MPa(100,000 psi)
Weight, kg(lb) less grapple & acces.	4535(10,000)

Lift Capacity

3.05	4.57	6.10	7.01 m
(10)	(15)	(20)	(23) ft
4921	3243	2402	1995 Kg
10,850	7,150	5,300	4,400 lb

*Specifications are based on chassis of truck on which the loader is mounted which is some 1016 mm(40in) above ground level.

Mechanical Specifications

Rotation System
- 2 motors, at 7-8 rpm, and 151 L/min(40 U.S.gal/min)

Stabilizers
- Width of Spread m(ft), 4.27(14)

Hydraulic System
- Reservoir,litres(U.S.gal.) 433(114)
- Triple Pump,L/min(USgal/min) 132.5/132.5/68 (35/35/18)

Recommended Grapples:
- Rotobec Model 144, 4542, 6609

Options: Telescopic stabilizer, sound enhanced cabin

MANUFACTURER:

Rotobec Inc.

200 Industrielle,
P.O. Box 189
Ste-Justine, Que.
G0R 1Y0
TEL: (418) 383-3002
FAX: (418) 383-5334
TELEX: 05-833559

COMACT FRONT-END LOADERS

The Comact CR 7000 front-end loader can perform different operations in a sawmill yard depending on attachment, whether it is chip loading, snow removal or lumber loading. Its lift height of 4.3 m (14 ft.) and reach of 1.8 m (5.83 ft.) makes it particularly versatile.

Comact front-end loaders are available in models CR 7000 and CR 8000, with quick-coupling attachments such as buckets, forks, forks with top clamps.

Particular Specifications

Wheelbase, m (ft)	3 (9.9)
Total length, m (ft)	7.6 (25)
Width, m (ft)	2.6 (8.7)
Height, m (ft)	3.2 (10.4)
Weight, kg (lb)	10 206 (22,500) CR-7000 12 020 (26,500) CR-8000

Mechanical Specifications

CR 7000	
Engine	Ford 363T, 112 kW (150 HP) @ 2500 RPM
Transmission	Funk 2000, 3 forward and 3 reverse
Tires	17.5-25 (L2)
Rear axle oscillation	± 12 deg.
Steering	Char-Lyn, 2 double action, 8.9 cm (3½ in) diam.
Hyd. pump	Vickers
Options	
Forks m (ft)	1.5, 1.8, 2.1, 2.4 (5, 6, 7, 8)
Motors	Ford 380, 89.4 kW (120 HP) GM 453T, 123.0 (165 HP)
Transmission	Clark
Cabin	F.O.P.S. R.O.P.S.—insulated

Other:
Counterweight, quick coupling system, side shift with/without grapple, snow or chip bucket, air dryer, safety lock valve, others on request.

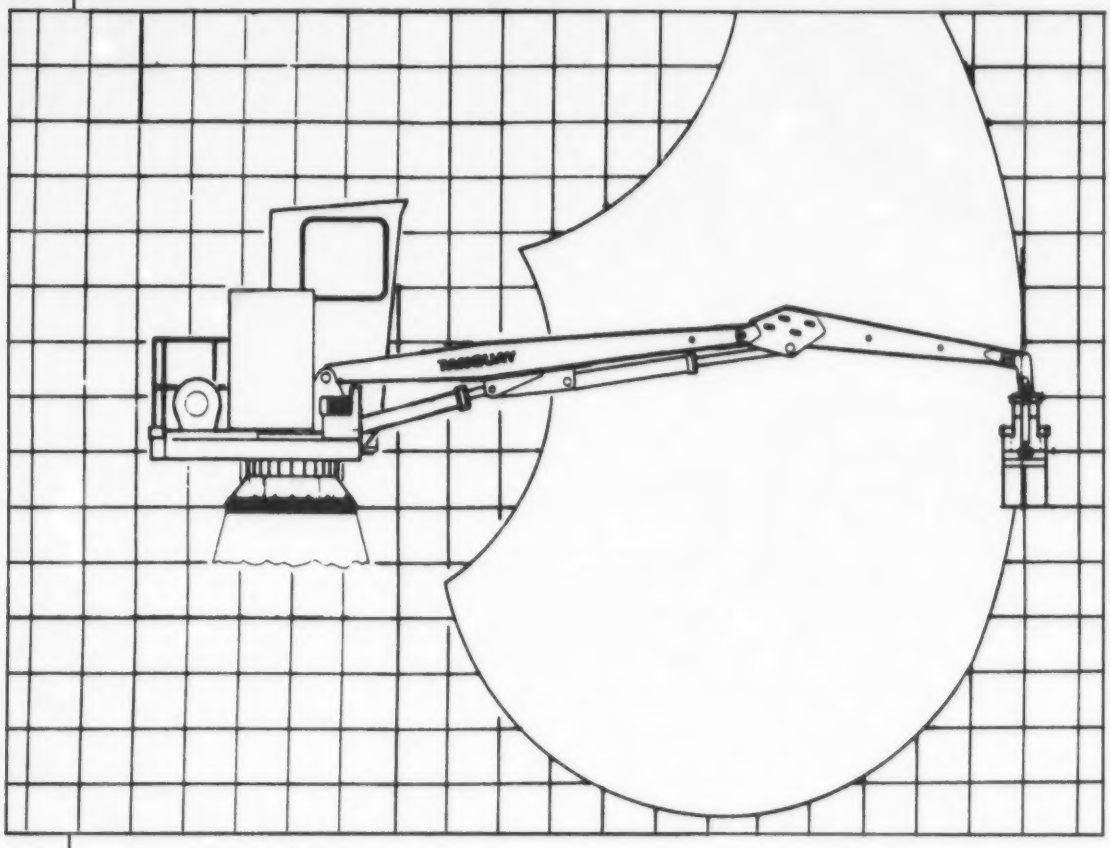
Operational Specifications

Loading is facilitated with a lift height of 4.3 m (14 ft), and a reach of 1.8 m (5.8 ft). The machine can do many different operations in a sawmill yard with quick coupling attachments, as well as perform in chip loading or snow removal.

MANUFACTURER:

Comact Machineries Inc.,
4000, 40e rue, St-Georges ouest
Beauce-Sud, Que. G5Y 5K6
Tel. (418) 228-8911 Telex 05-833510

TANGUAY PEDESTAL LOADERS



Tanguay model PL216 ES-28 pedestal loader

Tanguay are manufacturers of slashers, log loaders, delimbers, feller bunchers and attachments.

Tanguay pedestal loaders are available in models PL228, PL220, PL216 and PL5025.

Optional Equipment

Roof type air conditioner complete with built-in heater, swing limiting device with adjustable switches, electric swivel for continuous rotation, electric remote control and diesel engine, instead of electric motor.

The cab is engineered for safety and comfort with fully adjustable seat, handrails and steps for easy access, good viibility with safety glass and protective screens.

Mechanical Specifications

Model	PL216	PL220	PL228	PL5025
Engine	Electric	Electric	Electric	Electric
Power kW (HP)	56 (75)	75 (100)	93 (125)	45 (60)
Hydraulic System: One double vein pump and one single vein pump to deliver L/min (gpm.)	276 (73)	383 (101)	408 (108)	182 (48)
Weight kg (lb.)	8750 (19,000)	15075(33,500)	10800(24,000)	2268 (5000)
Booms	Forestry designed booms with optional sticks and grapples for pulpwood and tree length applications.			
Mounting Basis	Two heavy duty mounting basis with shock pads available for pedestal or conveyor mounting applications.			

MANUFACTURER:

Tanguay Industries Inc.,
2997 Watt St.,
Quebec, Que.
G1X 3W1
TEL: (418) 658-1315
FAX: (418) 658-6747
TELEX: 051-31676

CYPRESS LOG LOADER (CABLE)

The Cypress 7685 carrier provides mobility to model 7230R cable loader. The Model 7230C on hydraulic tractor undercarriage for maneuverability.

Cypress model 7230 cable log loader uses the same turntable bearing as the Model 7280B grapple yarder. Cypress 7685 rubber-tired carrier, available as model 7230R.

PRICE: Model 7230C @ $644,700. ; Model 7230R @ $ 733,500.
(Grapple and lines are extra) F.O.B. Cypress yard, Delta, B.C. (1988)

Operational Specifications

This high performance cable log loader's main and tag drums are American 7220 components. The mechanical boom hoist is powered up and down by simple air clutches, eliminating sprags and lifters. Only 4 gears are used in the entire winch and there are no bushings to grease. The 242Kw(325hp) engine coupled to a high output 3-stage converter makes heavy lifting possible. The high line speed is particularly good for long snorkle work.

Physical Specifications

Model	7230C	7230R
Height:m(ft)	9.4(31)	9.8(32)
O/A Length (Crawler): m(ft)	5.5(18)	8.5(28.5)
Width: m(ft)	4.2(13.67)	3.5(11.3)
Weight: kg(lb.) Complete	65772 (145,000)	
Weight: kg(lb.) Less Boom & Gan.	56700 (125,000)	56700 (125,000)
Weight: kg(lb.) dry-no rigging		65772 (145,000)

Mechanical Specifications

Model	7230C	7230R
Engine: kW/hp	GM 6V92T -242(325)	same
Torque Converter	Twin Disc 10000 series	same
Drums	1 Main line, 1 Tag line	same
Controls	Single lever,hyd. servo	same
Turntable:cm(in)	218(86) O.D. internal gear	same
Cab	Full vision	same
Boom:m(ft)	11(35) Bohemian	same
Undercarriage	Model 8300	same
Crawler	81cm(32in) double grouser shoe D8K idlers and sprockets 245 rollers	
Carrier		Model 7685
Engine: kW/hp		GM6V92 268(360)
Transmission:		Allison 5633-7
Axles: front		Rockwell FV910
rear		Clark BD91000
Speed: km/hr(mph)		42(26)
Gradeability:		30%

MANUFACTURER:

Cypress Equipment Co. Ltd.
8760 River Road
Delta, B.C.
V4G 1B5
TEL: (604) 946-1171
FAX: (604) 946-1319

KOEHRING K4 LOADER/FORWARDER

Koehring Model K4 loader/forwarder

Koehring Canada is a manufacturer of pulp mill, logging and construction machinery. The tree harvesting machinery consists of the following product line: Tree harvesters, feller forwarders, feller skidders, feller bunchers, log load aligner, log loading cranes and yarders. The loader forwarder is available in shortwood and tree-length configurations.

Particular Specifications

Overall Length	14400 mm	(47′-4½″)
Overall Width	4650 mm	(15′-7″)
Overall Height (top of cab)	6400 mm	(21′-0″)
Track	3800 mm	(12′-6″)
Ground Clearance	890 mm	(2′-11″)
Horizontal Reach (ground)	8230 mm	(27′-0″)
Weight	50000 kg	(110,000 lb.)

Operational Specifications

Vehicle is built to perform the functions of loading/unloading, and forwarding shortwood or tree-length depending on configuration. Diesel powered hydrostatic driven carrier with rotating upper, loader-type boom and wood bunk. The vehicle features centre joint oscillation and articulation.

Mechanical Specifications

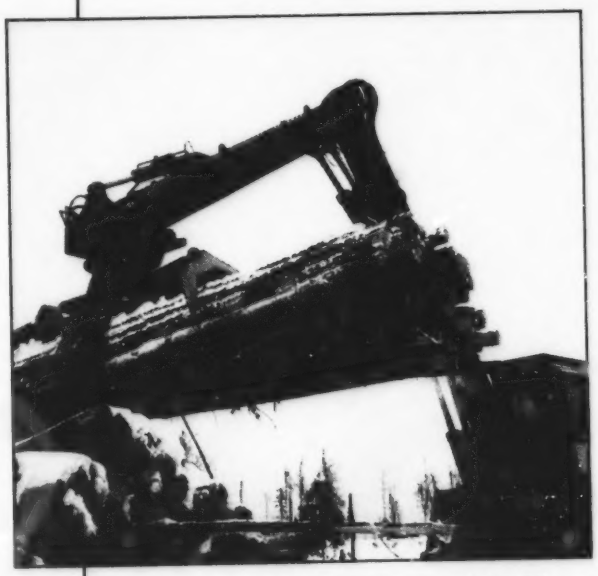
Engine	Cat 3306 DITA—rated at 201 kW (170 HP) @ 200 RPM
Power Train	Manual or powershift transmissions
Cab	Fully sound and temperature insulated Optional air conditioner
Controls	Hydraulic joystick hydra-sponse controls
Fire Suppression System	Engine compartment protection consisting of two manually actuated 14 kg (30 lb.) dry chemical extinguishers, nitrogen powered heat sensors, nozzles and alarm bell in cab.
Grapples Tree-Length Shortwood	Koehring butt and top tree-length grapple with integral rotating heel. Various types available.

MANUFACTURER:

Koehring Waterous, Div. of Timberjack Inc.,

P.O. Box 490, Market St. South,
Brantford, Ont., N3T 5P6
TEL: (519) 752-6571 FAX: (519) 752-3413
TELEX: 061-81117

HARRICANA BUTT'N TOP ROTATING GRAPPLE



The Harricana Butt'N Top rotating grapple has full rotation for fast loading/unloading of tree-length wood in either direction.

Choice of Harricana grapples models up to 7.2 m^3 (2 cords) grapple capacity; models RM-85-XS, 100-XS, 125-XS, 150-XS, 175-XS, 200-XS. Installed without modification on excavator boom, whether machines are on wheels, or on machines with boom and stick.

Operational Specifications

The grapple capacity is determined by the type of carrier, and by the working conditions.

Stabilizers establish the balanced load, with the balance being enhanced by the retaining cylinder and the interlocking jaws. Continuous rotation system increases flexibility and speed of the machine in handling and sorting of tree-length wood, either at the landing or the millyard. Particularly useful for loading and unloading butt and top tree-length wood.

Most often it handles tree-length wood, but it can also be used in other applications.

Particular Specifications

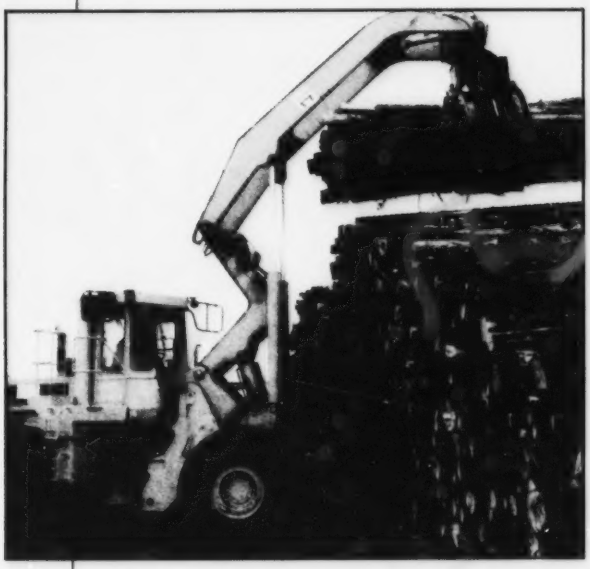
Models	Opening mm(in)	Capacity m^3/cords	Weight kg/lb.	Rotating output Torque, Nm(in/lb)
RM-85-XS	1707(67)	3.17 7/8	1088 2400	8333 (74,000)
RM-100-XS	1727(68)	3.6 1	1406 3100	12612 (112,000)
RM-125-XS	1829(72)	4.5 1 1/4	1814 4000	16576 (147,200)
RM-150-XS	2032(80)	5.4 1 1/2	1859 4100	16576 (147,200)
RM-175-XS	2184(86)	6.3 1 3/4	2812 6200	22105 (196,300)
RM-200-XS	2388(94)	7.2 2	2983 6200	22105 (196,300)

MANUFACTURER:

Harricana Metal Inc.,

P.O. Box 550
Amos, Que.
J9T 3A8
Tel.(819) 732-8381
Telex 057-46647
or in Delta, B.C.,
Tel.(604) 943-9692
Fax.(604) 943-1565

HARRICANA PARALIFT BOOM & GRAPPLE



The Harricana Paralift boom and grapple system, mounted on a front-end, wheel loader, lifts, carries, loads, unloads and stacks 4ft., 8ft. and 16 ft. wood.

Harricana rotating grapple models RM-150-2, and RM-225-2, are often utilized in loading operations. The company also manufacturers a complete range of continuous rotation grapples for use with the paralift boom for handling 1.2 m (4 ft), 2.4 m (8 ft) or 4.9 m (16 ft) log lengths.

Operational Specifications

The paralift boom and grapple can be mounted on most popular wheel loaders. Its parallelogram geometry provides good stability, while handling 1.2 to 4.9 m (4 to 16 ft.) logs in a variety of positions, with full lift at maximum reach.

All wheel loaders equipped with Paralift boom systems, can be quickly reconverted to their original attachment.

The Paralift builds high piles of wood with controlled release to prevent log scattering. The height of the wood piles varies with the make of the loader.

Particular Specifications

Harricana Rotating Grapples:

	RM-150-2		RM-225-2	
	mm	(in.)	mm	(in.)
Width (open	3658	144	4470	176
Width I.D. (closed)	1860	73¼	2292	90¼
Capacity, m^3 (cd)	5.4	1½	8.2	2¼
Weight, kg (lb)	1860	4,100	2812	6,200

Loader Grapple Models	RM-150-2, RM-150-4 3.1 m^3 (4 yd^3)	RM-225-2 3.8 m^3 (5 yd^3)
Max. Height, mm (ft)	7874 (25.875)	8458 (27.75)
Max. Reach, mm (ft)	3302 (10.83)	3937 (12.92)
Weight (grapple included) kg (lb)	4785 (10,550)	8890 (19,600)

MANUFACTURER:

Harricana Metal Inc.,

P.O. Box 550,
Amos, Que., J0T 3A8
Tel. (819) 732-8381
Telex 057-46647
or in Delta, B.C.,
Tel. (604) 943-9692
Fax. (604) 943-1565

ROTOBEC CONTINUOUS ROTATION GRAPPLES

Rotobec Continuous Rotation Grapples are adaptable to many models of loader and forest application.

Rotobec specializes in designing and manufacturing continuous rotation grapples. Pulpwood Grapples, models 184 to 1004 (11 capacities), Log Grapples, models 3537 to 9082 (13 different capacities, Log/Pulpwood Grapples models 4207 to 7606 (6 different capacities), Forwarder grapples models 6140, 7245. Rotors, models 3250, 9150, 24000, and 26000, 40000.

Particular Specifications

Model	Type	Capacity m^3(cd) 4ft	Capacity m^3(cd) 8ft	Grapple Opening cm(in)	Weight kg(lb)
184	Pulpwood	0.45(0.125)	0.91(0.25)	142(56)	340(750
to					
1004		3.6(1)	7.2(2)	406(160)	1452(3200)
3537	Log Grap.	0.11(0.93)	0.22(0.06)	94(37	302(665)
to					
9082		1.2(0.32)	2.3(0.64)	208(82)	771(1700)
4207	Log/Pulp	0.27(0.075)	0.15(0.54)	107(42)	193(425)
to					
7606		0.9(0.25)	1.8(0.5)	193(76)	767(1690)
6140	Forwarder Grap.	0.3(0.95)	0.7(0.19)	154(60.5)	340(750)
7245	Forwarder Grap.	0.5(0.135)	1(0.27)	182(71.5)	374(825)

MANUFACTURER:

Rotobec Inc.

200 Industrielle,
P.O. Box 189
Ste-Justine, Que.,
G0R 1Y0
TEL: (418) 383-3002
FAX: (418) 383-5334
TELEX: 05-833559

ROTATING GRAPPLES, TREE-LENGTH AND PULPWOOD

Butt and Top Grapple (top) for tree length loading, and the Pulpwood (8 and 16 foot) Rotating Grapple (above).

Weldco-Beales are specialists in the design and manufacture of machines and attachments for the forest industry, with a wide range of products.

Weldco-Beales manufactures the 360 Degree, Tree Length, Rotating Grapples; Butt and Top Type, and the 8 / 16 Foot Pulpwood Rotating Grapple. Models XG85 through XG200, Butt and Top Grapples, and Models PG65-2 through PG225-2 Pulpwood (8 Foot) Types and PG100-4 through PG200-4 Pulpwood (16 Foot) Types.

Particular Specifications

TREE LENGTH BUTT & TOP GRAPPLE

Model	Opening	Closing Jaw	Stabil. Cyl.	Tool Cyl.	Rotation	Weight
	cm(in)	cm(in)	cm(in)	cm (in)		kg(lb.)
XG85	137(54)	25(10)	10(4)	10(4)	Cont.	1089(2400)
XG100	140(55)	33(13)	10(4)	13(5)	Cont.	1406(3100)
XG125	157(62)	38(15)	13(5)	13(5)	Cont.	2087(4600)
XG150	165(65)	43(17)	13(5)	13(5)	Cont.	2132(4700)
XG175	183(72)	48(19)	13(5)	13(5)	Cont.	2812(6200)
XG200	208(82)	56(22)	13(5)	13(5)	Cont.	3992(8800)

Operational Specifications

The 360 degree, tree-length, rotating grapple for butt and top loading is designed for off-road log loading operations. Picking and placement control of tree-lengths, is achieved with the 360 degree rotating grapple. Individually controlled outriggers and powerful grab arms facilitate all tree-length handling. The units operate on all sizes of excavators.

The pulpwood rotating grapple has 360 deg. continuous rotation for easy pick- up and placement of wood.

PULPWOOD ROTATING GRAPPLE: 8 & 16 FOOT PULPWOOD TYPE

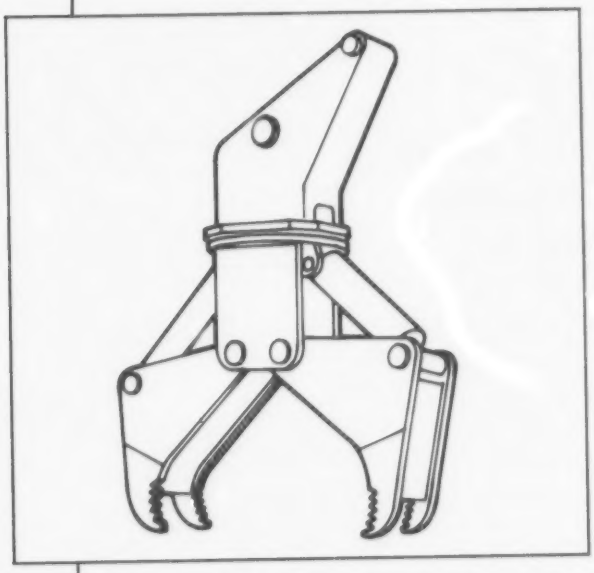
Model	Opening cm(in)	Closing cm(in)	Width cm(in)	Jaw Cyl. m^3(cds)	Capacity	Weight kg(lb.)
8 FOOT PULPWOOD						
PG65-2	229(90)	127(50)	91(36)	4	2.3(0.625)	862(1900)
PG75-2	254(100)	137(54)	91(36)	4	2.7(0.75)	953(2100)
PG100-2	279(110)	152(60)	91(36)	5	3.6(1)	1520(3350)
PG125-2	305(120)	168(66)	91(36)	5	4.5(1.25)	1792(3950)
PG150-2	330(130)	183(72)	91(36)	5	5.4(1.5)	1950(4300)
PG200-2	406(160)	213(84)	107(42)	6	7.2(2)	2790(6150)
PG225-2	437(172)	229(90)	107(42)	6	8.2(2.25)	2948(6500)
16 FOOT PULPWOOD						
PG100-4	226(89)	114(45)	107(42)	4	3.6(1)	1270(2800)
PG125-4	226(89)	127(50)	107(42)	4	4.5(1.25)	1406(3100)
PG150-4	254(100)	137(54)	122(48)	5	5.4(1.5)	1497(3300)
PG200-4	279(110)	152(60)	1222(48)	5	7.2(2)	1950(4300)

MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts St.
Burnaby, B.C.
V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-55103

POWER GRAPPLES WITH 360 DEGREE ROTATION



Power Grapples 360 degree rotation used to lift logs without heeling.

Weldco-Beales are specialists in the design and manufacture of machines and attachments for the forest industry with a wide range of products.

Weldco-Beales power grapple models 15PG27,25PG33,25PG36,35PG48, 35PG52. Models 15PC36 and 25PC44 Power Cant (timber) Grapples. Models 25CD25, and 35CD35 Compact/Driver, Multi-Use, Tool-Pile Driver- Pavement and Concrete Breakers. Models 10RF,15RF,25F,35RF Brush Cutters.

Operational Specifications

Exceptional dexterity is achieved by combining the grapple tilting cylinder with the rotary turning system. The result, duplicates the action of the human hand, lifting logs without heeling, pushing, and pulling without swinging free.

Particularly suited for log deck sorts and saw mill in-feeds.

Particular Specifications

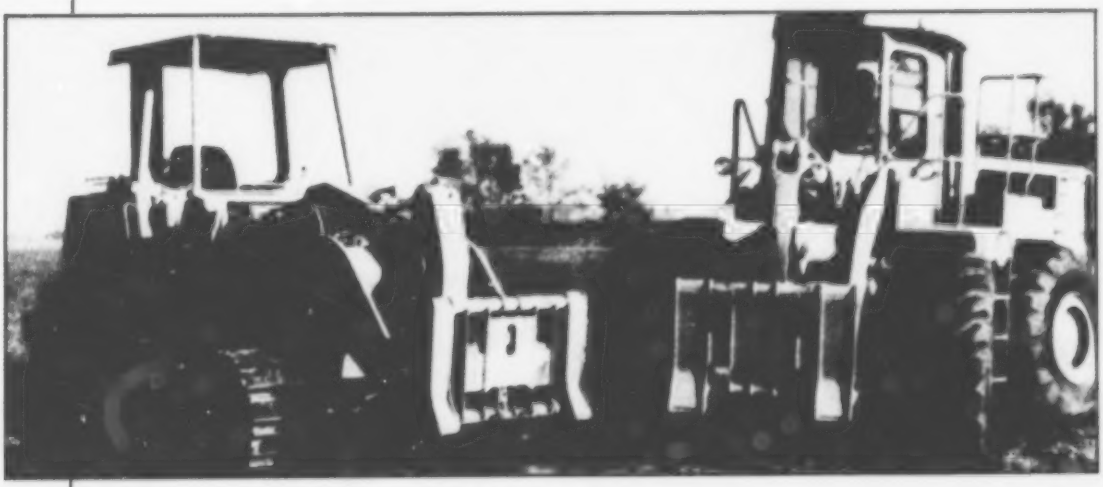
Machine Size m^3/yd^3	Model	Opening cm(in)	Closing cm(in)	Width cm(in)	Weight kg(lb)
0.47 to 0.57	15PG27	69(27)	11(4.5)	37(14.5)	748(1650)
0.76 to 0.96	25PG33	84(33)	11(4.5)	38(15)	1043(2300)
	25PG36	91(36)	11(4.5)	38(15)	1043(2300)
1.02 to 1.34	35PG48	122(48)	20(8)	38(15)	1179(2600)
	35PG52	132(52)	20(8)	38(15)	1179(2600)

MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts St.
Burnaby, B.C.
V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-55103

BALDERSON QUICK COUPLER ATTACHMENTS



Balderson Quick Coupler used on most models, has a wedge-style locking system to ensure a tight, secure fit between the Quick-Coupler and the attachment.

Balderson manufactures the Quick Coupler and a number of different Quick Coupler attachments consisting of: forks, booms, blades, plows for snow removal, railcar coupler, 5th wheel and hooks.

PRICE: The price for the coupler conversion kit, for a Cat 966E loader or equivalent is $ 3,950.00 list F.O.B. Edmonton, Alta (1988). Delivery is 2 to 3 weeks.

Particular Specifications

The Quick-Coupler converts any loader, wheel or track into a multi-purpose machine. The Coupler allows changing attachments on the front of the machine, in a matter of seconds, without leaving the cab.

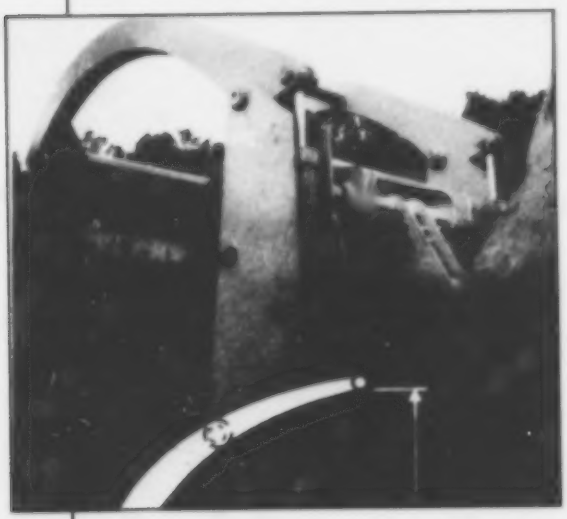
A wide range of attachments is available to go along with the coupler concept. Nearly every attachment manufactured for loaders & can be ordered with the quick coupler option. Such versatility, for instance, allows one machine to service a small mill, by loading logs, handling finished products, doing clean up work and removing waste products.

MANUFACTURER:

Balderson Canada Ltd.

6400 - 30th Street,
Edmonton, Alta.
T6P 1J6
TEL: (403) 469-9185
FAX: (403) 469-9256

VALLEE CUSTOM ATTACHMENTS



The Vallee Quick coupler system (top), adaptable to nearly all track or wheeled loaders. The combined grapple (above), for handling logs or lumber with horizontally or laterally adjusting forks, or wide load top clamp.

Les Industries Vallee manufacture lift trucks and light material buckets, heavy material buckets, quick couplers, combined grapples, as well as custom attachments made to measure.

Particular Specifications

The quick coupler system is adaptable to any front-end loader. All that is required to order the appropriate coupler, is the loader model, year of manufacture and unit serial number.

The combined grapple used for handling logs and lumber is offered with various options such as horizontally or laterally adjusting forks or wide load top clamps. Five models are available with fork lengths of 120.98 cm (48 in.), grapple opening of 274.32 cm (50 in.) and a hydraulic cylinder of 10.16x38.1 cm (4x15 in.) dimensions.

Heavy material buckets are available in 11 models having capacities to the rim from 0.736 m^3 to 5.345 m^3 (26 to 189 cu.ft.). They are available with quick or standard couplers. The light material bucket is available in 15 models having capacities from 0.064 m^3 to 9.163 m^3 (2.3 to 323 cu.ft.).

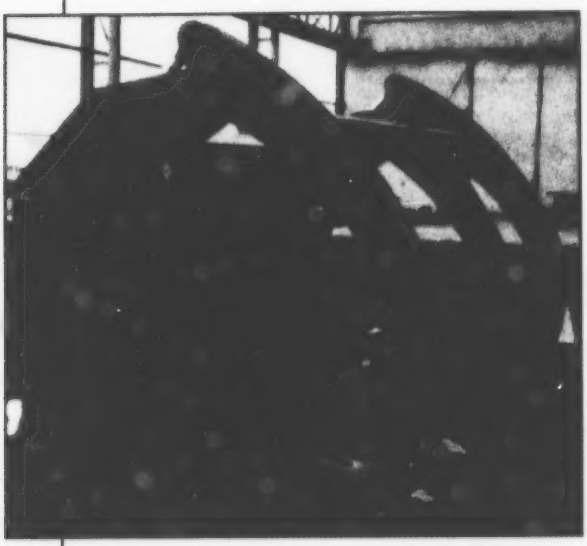
The Company offers a wide variety of non-standard, rugged, custom, attachments, for the front-end loader, for the specific applications. These attachments can utilize the quick coupler for optimal production of the loader.

MANUFACTURER:

Les Industries Vallee Inc.,

310 rue Principale,
St. Alban, Quebec
G0A 3B0
TEL: (418) 268-8955
FAX: (418) 268-5626

BALDERSON TREE-LENGTH LOG FORK



Balderson tree-length log forks, enable the operator to utilize the capabilities of the wheeled loader.

Manufactured by Balderson for all makes and sizes of rubber-tired and track-type loaders. The Balderson FTL series forks, and FMY model, available as an option.

PRICE: On loaders equivalent to the Cat 966E, current list price is $15,000 F.O.B. Edmonton Alta. (1988). Delivery is 3 to 4 weeks.

Operational Specifications

The FTL series forks are built wide, for use on longer logs where the wide grip is necessary to hold logs securely. The narrower FMY model is built for application in millyards and around bins, available as an option.

The fabricated box beam streamlines the forkback, increasing visibility, while maintaining strength. Concealed hoses eliminate the need for excessive guarding, however operator and machine guarding is recommended for machines used in forestry and land clearing operations.

Particular Specifications

Fork Model	FTL20	FTL16	FTL14	FTL12	FTL11
Curve height,cm(in)	193(76)	153(60)	147(58)	133(52)	130(51)
Min. Opening, cm(in)	66(26)	51(20)	38(15)	48(19)	43(17)
Tine Opening,cm(in)	251(99)	221(87)	211(83)	183(72)	192(76)
Curve Width,cm(in)	175(69)	151(59)	145(57)	137(54)	124(49)
Surface Area, $m^2(ft^2)$	1.8(19.8)	1.4(15.5)	1.2(13.3)	1.1(12)	1.1(12)
Weight, kg(lb)	3629 (8000)	2336 (5150)	1905 (4200)	1769 (3900)	1723 (3800)

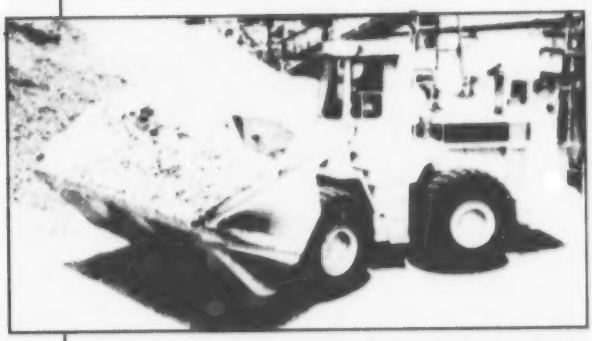
Options: FMY16 Millyard Fork.

MANUFACTURER:

Balderson Canada Ltd.

6400 30th Street
Edmonton, Alta.
T6P 1J6
TEL: (403) 469-9185
FAX: (403) 469-9256

BALDERSON WOODCHIP ATTACHMENTS



Balderson offers a complete line of woodchip handling attachments, including buckets for Cat wheel and track loaders, U-blades and chip scoops. Photo shows Cat D9L with Balderson BD9US-20 U-blade of 57.3 m³ (74.9 yd³) capacity.

Balderson manufactures woodchip buckets for Cat wheel loaders, models 988B through 910. Balderson models B88-23S rated at 17.6 m³ (23 yd³) to B10-3S at 2.9 m³ (3.8 yd³) capacity. Woodchip U-Blade for Cat track-type tractors, models D10 to D6H; Balderson BD10 US-24 with a capacity of 116 m³ (152 yd³) to BD 6 US-14 of 15 m³ (20 yd³) capacity. Chip Scoop for Cat wheel-type tractors, models 834B to 814B; Balderson scoop models B34-45S, B24-30S, B14-20S at capacities 30.6 m³ (40 yd³), 22.3 m³ (30 yd³) and 34.4 m³ (45 yd³).

PRICE: For Fiat FR35 size or equivalent woodchip bucket, the price is $ 20,300.00 list F.O.B. Edmonton, Alta. (1988). Delivery for the smaller common buckets is 4 to 5 weeks, and the larger buckets is 6 to 8 weeks.

U-Blade Price for the D8N Caterpillar size or equivalent is $ 20,000.00 list F.O.B. Edmonton, Alta. (1988).

Price for the D8N Caterpillar or equivalent sized scoop is $75,000.00, list F.O.B. Edmonton, Alta. (1988). Delivery 10 to 12 weeks.

Operational Specifications

Woodchip buckets are designed to take advantage of the wheel loaders capability to lift and carry chips. They are of large capacity, but of light weight. Their application is complicated by the variations of wood species, chip moisture content, climate and ground conditions. A large variety of buckets is therefore available to meet particular needs.

Chip scoops are designed to increase the chip handling capability of wheel dozers by partially carrying, and partially pushing loads. These scoops have limited capability to lift chips and dump into chutes.

The woodchip U-blades are of large capacity, light weight, designed to utilize all the capability of the prime mover to push a maximum amount of chip payload.

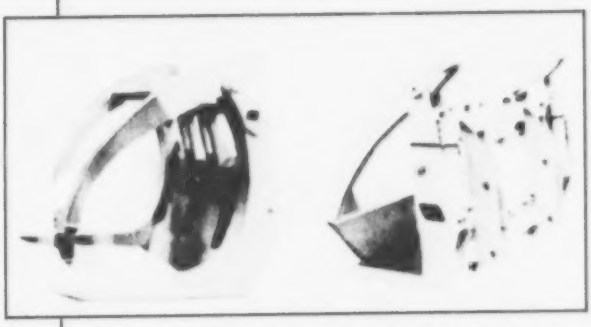
Particular Specifications

Model Chip Scoop	B34-45S	B24-30S	B14-20S
Lift & Carry Cap. ($m^3(yd^3)$)	34.4(45)	22.3(30)	15.3(20)
Doze Cap., $m^3(yd^3)$	68.8(90)	49.7(65)	30.6(40)
Width,mm(in)	6096(240)	4013(158)	3734(147)
Height,mm(in)	2794(110)	2540(100)	2540(100)
Depth,mm(in)	2845(112)	3277(129)	2540(100)
Dump angle,deg	50	60	55
Weight, kg(lb)	9072(20,000)	7561(16,670)	5486(12,095)

MANUFACTURER:

Balderson Canada Ltd.
6400 30 St.
Edmonton, Alta.
T6P 1J6
TEL: (403) 469-9185
FAX: (403) 469-9256

WELDCO-BEALES LOG AND PALLET FORKS



The Weldco-Beales grapple is performance matched to loader capabilities for forest landing or mill yard production

The Company specializes in the design and manufacture of machines and attachments for the forest industry, with a wide range of products to suit individual needs.

Weldco-Beales Front-end Loader Forks, Clamps, and Grapples. Weldco-Beales Models FHS-48-80 to FHC110-132 High Capacity Log Forks, FLP48-70 to FLP66-108 Semi-Low Profile Log Fork, FHCB 48-80 to FHB 60-108 Baled Top Clamp, FTL 48-70 to FTL 66-108 Tree Length Fork, PF 48-70 to PF 84-112 Pallet Fork, PFTC 48-70 to PFTC 84-112 Pallet Fork with Top Clamps.

Operational Specifications

The high capacity log fork is designed for handling large loads, with independent operating overarms, and reinforced overarm pivot points.

The operator's line of sight and visibility has been greatly enhanced with the semi-low profile fork by reducing overall height. This attachment is popular among sawmill and lumber yards.

The overarms of the baled top clamp fork provide tight clamping action for short logs and small diameter single log operations.

The tree-length fork was specially designed for single log, tree length logging. The unique grapple configuration assures a positive grip, especially necessary for rough terrain transportation.

Log grapples are available for most makes and models of front-end loaders. The grapple is constructed of alloy steel, assuring low stress with less weight, while allowing large capacities. The grapples being matched to the loader capabilities, allow full utilization of the equipment.

Particular Specifications

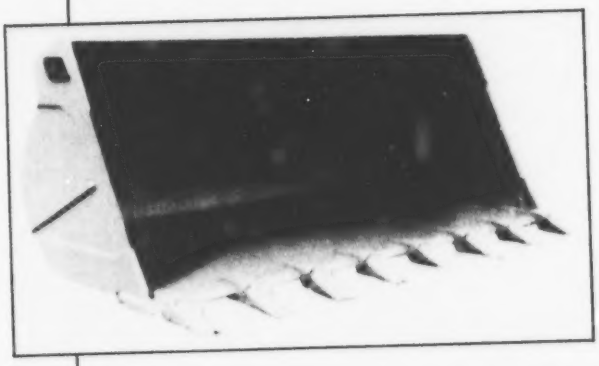
Type	Model	Opening cm(in)	Approx. Weight kg(lb)
Log Grapple	M5	160(63)	560(1,235)
	to		
	M139	287(113)	5897(13,000)
Plywood Peeler Fork with top	65-10	234(92)	1043(2300)
	to		
	65-25	272(107)	2087(4600)
Pallet Forks	PF5	152(60)	442(975)
	to		
	PF40	229(90)	4990(11,000)
High Capacity Log Fork	FHS 48-80	246(97)	1383(3,050)
	to		
	FHC 110-132	457(180)	5579(12,000)
Baled Top Clamp	FHCB 48-80	213(84)	1428(3,150)
	to		
	FHCB 60-108	264(115)	2105(4,640)
Tree-Length Fork	FTL 48-70	203(80)	1306(2,880)
	to		
	FTL 66-108	292(115)	2631(5,800)

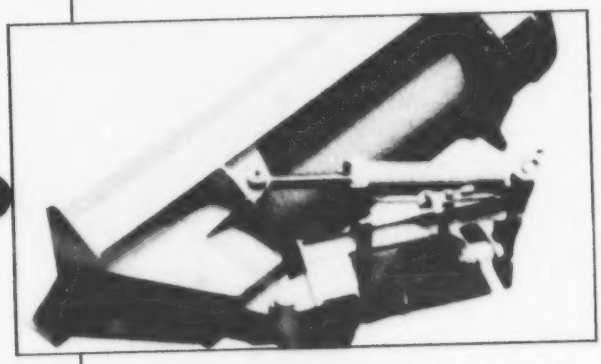
MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts Street
Burnaby, B.C.
V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-55103

WELDCO-BEALES LOADER BUCKETS





Weldco buckets with various widths and capacities can be used for the different materials.

Weldco-Beales manufactures general purpose (GP) buckets, light material (LGP) buckets, heavy material (HGP) buckets; wood chip (CHP) buckets, standard and (CHBB) chip bonus buckets.Weldco-Beales models. RB, rock bucket; RBS, rock bucket spade nose; RTB, tine bucket; MPB, multi- purpose bucket; STB and SLB, slip on buckets.

The Company are specialists in the design and manufacture of machines and attachments for the forest industry with a wide range of products.

Operational Specifications

The two styles of chip buckets, standard and bonus are available. The bonus type incorporates a unique lugging design which moves the center of gravity closer to the loader, increasing carry capacity and stability.

Particular Specifications

Type	Model	SAE Rated Capacity $m^3(yd^3)$	Approx. Wt. kg(lb)
General Purpose Bucket	GP.75	0.57(3/4)	299(650)
	to		
	GP10	7.6(10)	4468(9,850)
Light Material G.P. Bucket	LP2	1.5(2)	599(1,320)
	to		
	LP12	9.2(12)	3720(8,200)
Heavy Duty G.P. Bucket	HGP4.5	3.4(4-1/2)	1882(4,150)
	to		
	HGP8	6.1(8)	3890(8,575)
Chip Buckets Std.	CHB3.5	2.7(3-1/2)	658(1,450)
	CHB10	7.6(10)	1746(3,850)
	CHB30	23(30)	5080(11,200)
Chip Bucket Bonus	CHBB3.5	2.7(3-1/2)	644(1,420)
	CHBB45	34.4(45)	7371(16,250)
Multi-Purpose Bucket	MPB.75	0.57(3/4)	585(1,290)
	to		
	MPB5	3.8(5)	4445(9,800)

MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts St.
Burnaby, B.C.
V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04 - 55103

LOGGING AND TRANSPORT: SECONDARY TRANSPORT
LOGGING AND TRANSPORT

Page

Secondary Transport 187

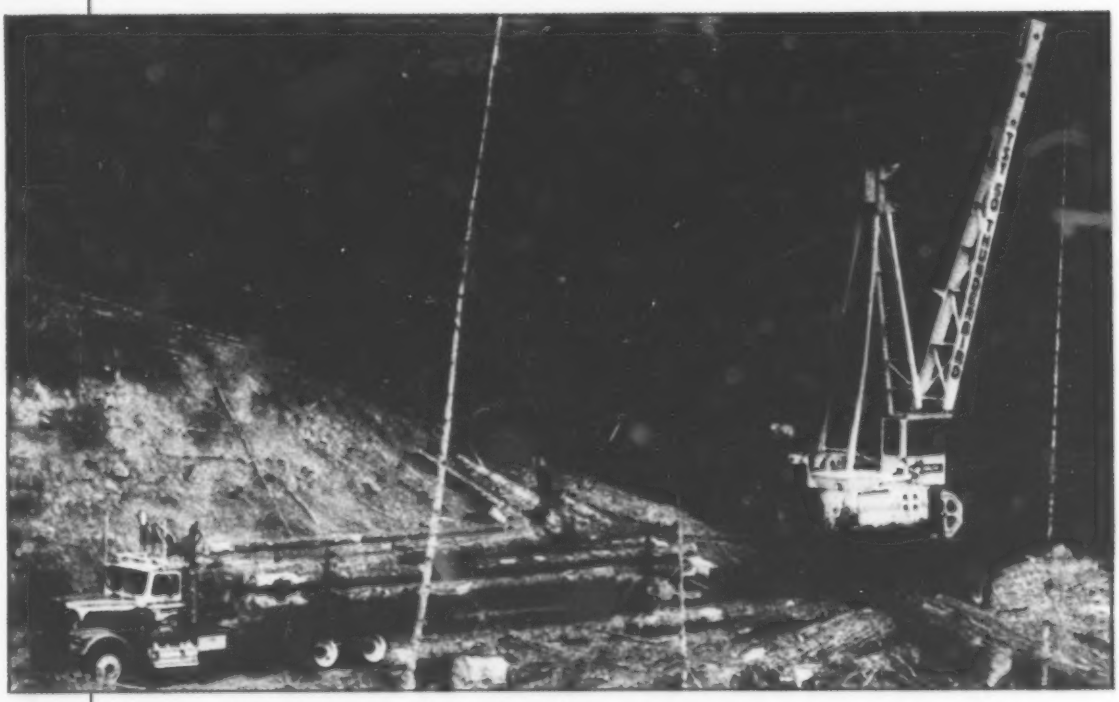
Trucks, On and Off Highway
- Freightliner Logging Trucks 188
- International Trucks 189
- Western Star Trucks 190
- West Coast Challenger Trucks 191

Trailers, Pulp, Log, Chip and Equipment Transport
- Tridem Logger Trailer 192
- Timmins Logging Trailers 193
- Temisco Trailers 194
- Rodeck Logging Trailers 195
- Rem Fab Floats and Tilting Trailers 196
- Lardine Logging Trailers 197
- CTS Log and Pulp Trailers 198
- BWS Logging Trailers 199

Complementary Truck / Trailer Equipment
- Chalmers Tandem Truck-Trailer Suspensions 200
- Koehring Pulpwood Load Aligner 201
- Canadian Truck Fiberglass Bodies 202

Water Transport
- Lister Chains, Bolts and Forgings 203

FREIGHTLINER LOGGING TRUCKS



Freightliner Conventional Logging Truck with special logging specifications for forestry applications (Class III)

Freightliner are custom builders, and one of North American leaders in the manufacture of trucks.

Crafted to the purchasers specifications, the Freightliner Logger is designed and built for off and on-road requirements. It starts with the Freightliner Conventional Logging Truck, with additional specifications available for logging applications (Class III).

Particular Specifications

Specifications required for logging applications include: Special service packages with heavy duty cab kit, underslung cross members at rear engine mounts, rear brake dust shields, dual suction and return fuel lines, fiberglass hood, steel C-channel web-mounted cross members with rear cab mount tied to C-channel web, 5 mm (3/16 in.) cab decks, heavy duty door frame stiffeners, logger bumper of 9.5 mm (3/8 in.) steel, heavy duty air tank brackets, 8 mm (5/16 in.) rear cross member with A-frame, extra air line to end of frame with dash valve, steel boxed tail/stop/back-up lights, cold weather roof and wall insulation, insulated cab doors, double thick floor insulation, tool box seat with back rest.

The company lets the customer design the logging truck from a wide range of high performance, and application options to better meet the particular needs.

MANUFACTURER:

Freightliner of Canada Ltd.,

3880 Nashua Drive, Mississauga, Ont. L4V 1M5
TEL: (416) 677-4961
FAX: (416) 677-0813

INTERNATIONAL TRUCKS

Paystar 5000 Series trucks can be equipped with a wide variety of on/off highway, single and tandem axles from Dana, Rockwell and Eaton, with ratings from 10433 kg (23000 lb.) to 29484 kg (65000 lb.).

International Paystar 5000 Series: F-5050SB, F-5070SB (6x4); F-5050SF, F-5070SF (6x4); 5050SB, 5070SB (4x4); F-5050SB, F-5070SB (6x6); F5070WW (6x4); International Premium Conventional 9300 Series.

A complete choice of chassis configurations permits the purchaser to specify the most efficient and productive model for the job.

Particular Specifications

Series 5000

Wheelbases available, cm (in)
371 (146), 417 (164), 462 (182), 508, 539 (200, 212), 508, 554 (200, 218), 584, 600, 615 (230, 236, 242)

Front Axles and Suspension, kg (lb.)
7258 (16,000), 8165 (18,000), 9072 (20,000), 9526 (21,000)

Rear Axles, cm (in)
10433 (23,000), 18144 (18,000), 19958 (44,000), 20866 (46,000), 26309 (58,000), 29,484 (65,000)

Rear Suspensions, kg (lb.)
10433 (23,000), 17237 (38,000), 19958 (44,000), 22680 (50,000)

GVW/GCW ratings up to 63504 (140,000 lb.)

Mechanical Specifications

Series 5000

Engines, kW (hp)
International DT-466 - 157.5 (210), DT1-466 - 157 5 210)
Detroit Diesel 6V-92 TA - 225 (300), 6V-92 TTC - 225 (300), 6V-92 TA 262.5 (350)
Cummins 110 - 180 (240), L10 - 180, 202.5 (240, 270); PT-240 - 180 (240), PT-270 - 202.5 (270); NTC-300 - 225 (300), NTCC-350 - 262.5, 300 (350, 400)

Main Transmissions 5-Speed Fuller, 5-Speed Allison Auto., 9-Speed Fuller, 10-Speed Fuller, 13-Speed Fuller, 15-Speed Fuller.

Auxiliary Transmissions 2-Speed Fuller, 4-Speed Spicer

Operational Specifications

The Company offers "FOCUS," a series of computer analysis programs, available at no cost or obligation through their dealer network, to help interested individuals make informed business decisions on the specifications, operation and maintenance of the truck options. The weight distribution analysis program helps the purchaser analyze truck, body, and payload weights in order to maximize loads and meet requirements. Another program called TCAPE, helps the purchaser specify the most suitable engine and drivetrain combination to assure maximum performance, fuel economy and gradeability for the job.

MANUFACTURER:

Navistar International Corp.(Canada)

120 King St.W.,
P.O. Box 2020
Hamilton, Ont., L8N 3S5
TEL: (416) 528-7700

WESTERN STAR TRUCKS

The Western Star 6900 Series severe service truck, used in off-highway logging applications.

Western Star models 3800, 4800, 4900, with over-the-road and off-road capabilities; 6900 and 7900 heavy-duty, severe service, off-road trucks.

Operational Specifications

Western Star builds trucks to suit the particular needs of operators, with customization, and many option offerings for on and off road applications.

The 6900 series trucks are for severe off-highway duty, available with many heavy duty options and engine offerings up to 331kW, making them particularly suited to many logging transport applications.

Particular Specifications

	Truck Models			
	364S	4864S,F	4964S,F	6964
Engines, kW (hp)	179-224 (240-300)	179-331 (240-444)	224-331 (300-444)	298-331 (400-444)
Bumper to B.O.C. dimension, cm (in.)	277 (109)	277 (109)	312 (123)	335 (132)
Front Axle Capacity kg (lb.)	5443-9072 (12000-20,000)	5443-9072 (12000-20,000)	5443-9072 (12000-20,000)	9072 (20,000)
Rear Axles, Single kg (lb.), Tandem	9526 (21,000) 18144 (40,000)	10433 (23,000) 22680 (50,000)	10433 (23,000) 22680 (50,000)	20866 (46,000) 40824 (90,000)
G.V.W. Rating, Max kg (lb.)	27217 (60,000)	31752 (70,000)	31752 (70,000)	49896 (110,000)
G.C.W. Rating, Max kg (lb.)	36288 (80,000)	77112 (170,000)	77112 (170,000)	113400 (250,000)
Type:	Short nose Conventional	Short nose Convent.	Long nose Convent.	Long nose Convent. to severe service

MANUFACTURER:

Western Star Trucks Inc.
2076 Enterprise Way,
Kelowna, B.C., V1Y 6H8
TEL: (604) 860-3319
FAX: (604) 860-1252
TELEX: 048-5153

WEST COAST CHALLENGER TRUCKS

The New West Coast Challenger Truck for off-road logging applications

West Coast Challenger Trucks were designed by a truck logger with the assistance of a former Hayes Engineer, stressing durability and ease of maintenance, and with emphasis on economical operation.

Particular Specifications

The engine slides out on an inner frame with radiator still full of antifreeze and transmission integrally mounted.

Other features are: High capacity 2000 litre (531 gal) water tank.

Oil bath compensator with air lock operated from the cab.

Hinged fenders and grilled guard for easy access.

Large outside tool box.

9-foot turntable.

1 3/4 U-bolts.

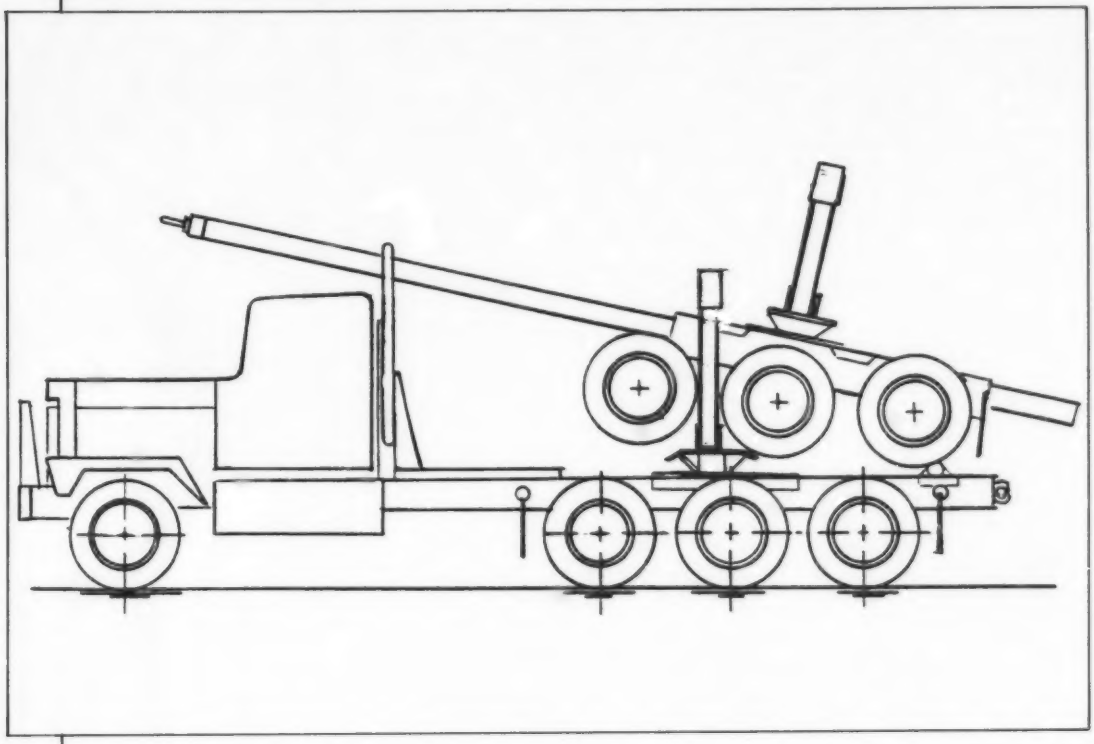
2.7m (9ft) turntable.

MANUFACTURER:

Challenger Manufacturing Ltd.

Box 1298
Port Alberni, B.C.,
V9Y 7M2
TEL: (604) 724-3731
FAX: (604) 724-1112

TRIDEM LOGGER TRAILER



Tridem Development Logger

Knight Trailer is actively engaged in the development of the Tridem Logger. It is not yet legal for B.C. highways, but was shown at Wood Expo 88, Vancouver, in order to determine tridem logger standards for future highways regulations.

Particular Specifications

Highway GCW to 54432 kg (120,000 lb.)
Payload to 40824 kg (90,000 lb.)
Trailer capacity to 30480 kg (30 tons)
Tridem axles on trailer
Knight mechanical suspension
Walking beam type stability
Integrated leaf spring cushion
Low profile fixed stake bunk

Operational Specifications

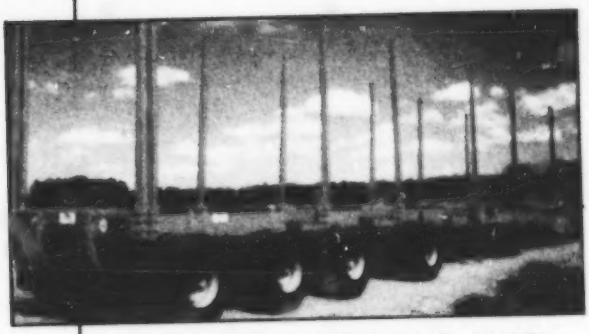
Tests are being conducted by the manufacturer on the Tridem Logger to determine steering, stability, onswing and other characteristics before the new RTAC regulations are set.

MANUFACTURER:

Knight Trailer Company Inc.

A subsidiary of Goodbrand International Inc.
5770 Production Way
Langley, B.C. V3A 4N4
TEL: (604) 530-9555
FAX: (604) 530-2206

TIMMINS LOGGING TRAILERS



The 14.6 m (48ft)-3 Axle-6 Bunk, Drop Deck Logging Trailer, Timmins Model DDL48-3A-TAL

Timmins standard and drop deck loggers, standard and drop deck pulp trailers, Timmins chip van and B-train trailers, low bed trailer, flat deck trailers and B-train, Timmins air lift and Timmins heavy duty, and extra heavy duty spring suspension

PRICE: 14.6 m (48ft)-3 Axle-6 Bunk Drop Deck Logging Trailer, $46,705, F.O.B. Timmins (1988). Price varies with specifications.

Operational Specifications

Tires and rims are available in choice of sizes and styles, tubeless and tube types. Axle capacity may be increased to 11340 kg (25,000 lb.) or 13608 kg (30,000 lb.). Load securing devices such as winches, load binders, cables, and chains are available.

As much of the trailer equipment is custom manufactured, contact manufacturer for additional information.

Particular Specifications

Model DDL48-3A-TAL	
Length, m (ft)	14.63 (48)
Width, m (ft)	2.59 (8.5)
Height, m (ft)	4.11 (13.5)
Main Frame, cm (in)	40.64 (16) fab. hi-tensile steel
Weight, kg (lb.)	10400 (22,928)
Bunks, m (in)	15x20 (6x8) tubing
Pickets, length m (ft)	2.74 (9) & 3.05 (10) of CNT 100 steel
Body Type	Drop deck logger

Mechanical Specifications

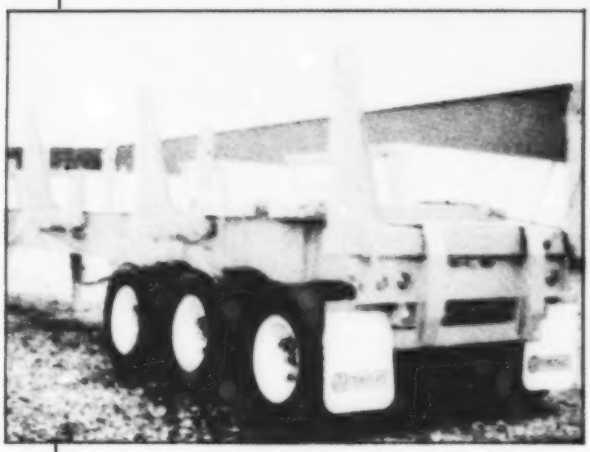
Suspension, cm (in)	Timmins Spring Type, model TSS-28 3 axle choices of 137 (54), 152 (60) 163 (64), 185 (73) & 196 (77) spreads
Axles, capacity kg (lb.)	10206 (22,500), 196 cm (77 in) track
Tires	11R24.5 XZY Mich-16 Ply.

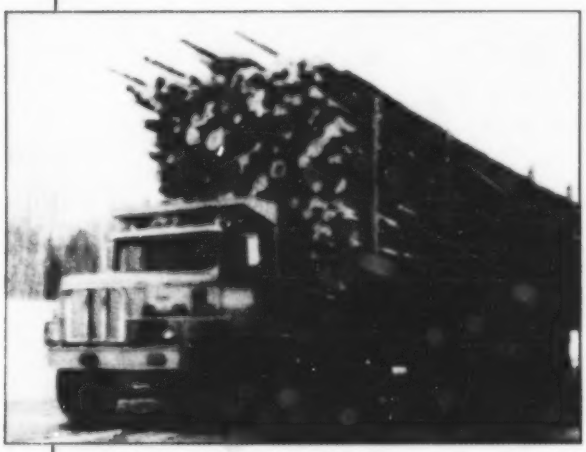
MANUFACTURER:

Porcupine Trailers Ltd.

2090 Riverside Dr.
P.O. Box 1487
Timmins, Ont., P4N 7W7
TEL: (705) 267-7195
FAX: (705) 268-4723

TEMISKO TRAILERS





Temisko semi-trailers, come in a variety of chip, pulp and tree-length types. Shown here is the heavy-duty, off-road logger with extending bunks, and telescopic piquets.

Temisko specializes in the manufacture of semi-trailers with lead emphasis on the forest industry. The Company manufactures semi-trailers such as the heavy duty, off-road logger, with extending bunks and telescopic posts; multiple tandem models, for butt and top loading; dump-through B-train chip models, ultra-lights, tree-length haulers and hydraulic fifth wheel models; walking floor (self loader and unloader); heated and refrigerated vans.

Particular Specifications

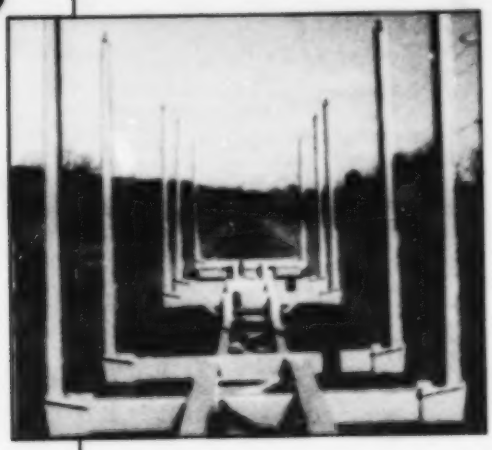
Temisko semi-trailers are built to handle wood chips, bark, sawdust, pulpwood and tree length-logs, according to customers particular needs.

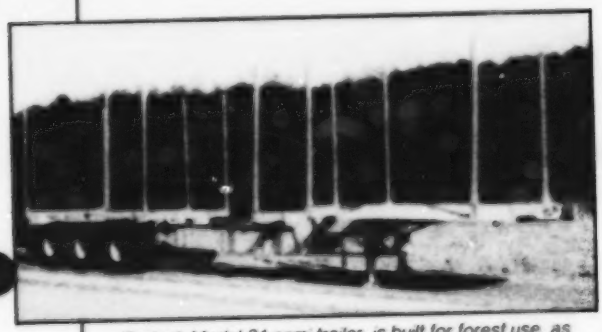
MANUFACTURER:

Temisko (1983) Inc.,

P.O. Box 460,
Notre-Dame du Nord, Que.,
J0Z 3B0
TEL: (819) 723-2416
FAX: (819) 723-2827

RODECK LOGGING TRAILERS





Rodeck Model 21 semi trailer, is built for forest use, as well as highway transportation. In spite of its light weight of 9979 kg (20,000 lb.), the semi-trailer can haul four tiers of 3 m (10 ft) or 3.7 m (12 ft) of logs, or three tiers of 4.9 m (16 ft) logs.

Rodeck, the forest division of Manac, manufactures the following trailers: Model 26, off highway semi-trailer for butt & top loading; Model 21, logging semi-trailer, in multiple lengths; Model 50, low bed; Model 36, chip van and Model 10, flatbed.

Operational Specifications

In the Rodeck model 21 multiple length logging trailer, the elimination of the conventional floor prevents the accumulation of ice or wood debris.

In the Rodeck Model 50 low bed semi-trailer, the trailer capacities vary from 45,360 kg (100,000 lb.) to 90,720 kg (200,000 lb.) and are specially designed for the transport of heavy equipment on highways or forest roads. They are designed with a detachable goose neck, without ground support, and equipped with two high capacity cylinders allowing the lowering or raising of the platform, depending on road conditions.

The Rodeck Model 26 allows a net load of 119 750 kg (264,000 lb.), equivalent to approx. 46 cunits of wood. The trailer is equipped with a Rodeck fifth wheel, permitting the attachment of a second trailer for A-train operations.

Particular Specifications

	Model 21	Model 26	Model 36
Length, m (ft)	14 (46) or 15 (48)	16 (52)	
Width, cm (in.)	102 (259)	4 (13)	
Load height, m (ft)	4.1 (13.5)	5.5 (18)	
Weight, kg (lb.)	9 979 (20,000)		
Capacity chips, m^3/ft^3			116 (4,100)

Mechanical Specifications

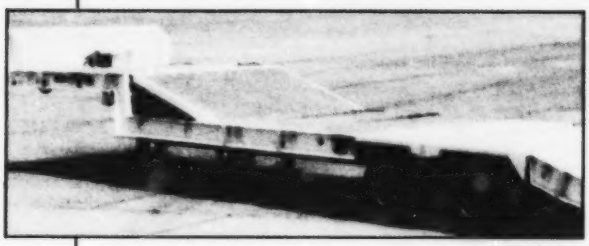
Suspension model 21	Three combinations of suspensions are available: Twin axle mechanical type, spread on 153 cm (60 in.) or 183 cm (72 in.), plus air suspension on sliding supports, allowing displacement to rear for forest, and to front, for highway operation. Tri-axle mechanical type, spread on 153 cm (60 in.) with an air suspension axle at 254 cm (100 in.). Double-axle Rodeck suspension, spread on 183 cm (72 in.), combined with two air suspensions of 254 cm (100 in.) centre to centre
Suspension model 26	Two pivot mounted Rodeck suspensions, with a capacity of 68 040 kg (150,000 lb.) each. This semi-trailer is equipped with 16 1400x25 tubeless tires.

MANUFACTURER:

Manac

Rodeck Forest Division,
2275, 107e Rue.,
St-Georges, Beauce
Quebec G5Y 2C9
TEL: (418) 228-2018
FAX (418) 227-3344
TELEX: 05-833531

FLOATS AND TILTING TRAILERS



The Rem Fab Special Double-Axle Float for machinery transport

Rem Fab are specialists in the manufacture of floats, and tilting trailer models: R3, Tilting Double-Axle Float; R16, Special Double-Axle Float; R17, Double-Axle Float; RD80, Tri-Axle Float; RD80FP, Tri-Axled Beam Float; RD80, Super Light Tri-Axle Float; R3T, Hydraulic Tilting Tag-along-Trailer.

Operational Specifications

The Rem Fab tri-axle trailer is available in four versions depending on particular needs:

1. The Super Light Tri-Axle Float with special rear light slope. Weight with 100,000 lb. steel is 30 percent lighter than the standard model.
2. The Super Light Tri-Axle Float without the rear light slope, with standard lighting system that meets safety regulations.
3. Tri-Axle Beam Float.
4. Tri-Axle Float.

Particular Specifications

Models	R3	R3T	R16	R17	R8
Capacity	9072-22680	13608-36287	18144-45359	18144-45359	36287-113935
kg (ton)	(10-25)	(15-40)	(20-50)	(20-50)	(40-125)
Width	2.4-3.7	2.4-3.7	2.4-3.7	2.4-3.7	3.0-3.7
m (ft)	(8-12)	(8 to 12)	(8-12)	(8-12)	(10-12)
Height	76-107	76-107	66-76	66-76	61-76
cm (in.)	(30-42)	(30-42)	(26-30)	(26-30)	(24-30)
Decks	4.3-7	7.9 or X	12-16	5.5-7	6.7-7.6
m (ft)	(14-23)	(26 or X)	(40-51)	(18-23)	(22-25)
Floor	3.5 Oak	3.5 or 5.7	3.4 Oak	5.7 Oak	5.7 Oak
cm (in.)	(1 3/8)	(1.3-2.3)	(1 3/8)	(2 1/4)	(2 1/4)
Lighting	To reg	To reg.	To reg.	To reg.	To reg.
Brakes	Air	Air	Air	Air	Air
Axle Cap.	10206	10206	10206	10206	10206
each kg/lb.	(22,500)	(22,500)	(22,500)	(22,500)	(22,500)
Tires	8/trailer	8/trailer	8/trailer	8/trailer	12/trailer
cm (in.)	38 or 51 dia (15 or 20)	38 or 51 dia (15 or 20)	51 or 56 or 61 (20-22-24)	51 or 56 or 61 (20-22-24)	51-56-61 (20-22-24)
Other		hyd. tilt. hyd. ramp	hyd. winch hyd. ramp		
Options	Extens.	Extens.	Extens.	Extens	
cm (in)	31 (12)/side	31 (12)/side	31 (12)side	31 (12)	

MANUFACTURER:

Les Remorques Rem Fab Inc.

3500, 2e Rue.
Saint-Hubert, Que.,
J3Y 5S9
TEL: (514) 445-2120
FAX: (514) 445-6196
TELEX: 05-25134MTL

LARDINE LOGGING TRAILERS

Lardine 30-ton tri-axle trailer.

Lardine custom manufactures logging trailers for the forest industry. The Company manufactures: the 20 ton logging trailer c/w 30-ton capacity dog logger, 30-ton tri-axle long log trailer c/w truck equipment, Super B-Train Loggers.

PRICES: Ranges from $ 20,000. to $ 90,000. F.O.B. Surrey, B.C. (1988)

Particular Specifications

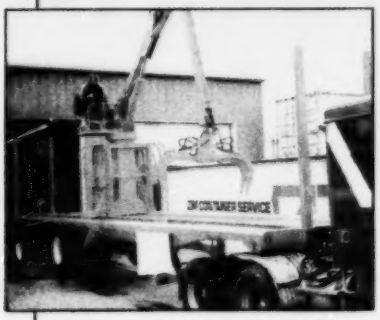
As much of the equipment is custom manufactured, it is recommended the potential purchaser contact Lardine for particular specifications and options which are available to best meet their needs in logging.

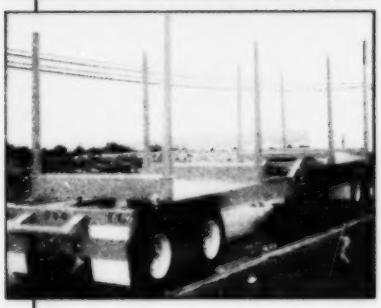
MANUFACTURER:

Lardine Truck and Trailer Ltd.

19325 B 96th Ave.,
Surrey, B.C., V3T 4W2
TEL: (604) 888-4433
FAX: (604) 888-0634

CTS LOG AND PULP TRAILERS





1. CTS log and pulp trailer (upper). 2. CTS pulp trailer with optional hydraulic loader (middle) 3. CTS tree-length trailer with hydraulic sliding rear bunk

CTS provides contracting and fabricating services; also manufactures containers, and truck trailers available in pulpwood and tree-length models.

PRICE: Log and pulp trailer, F.O.B Dartmouth plant - approx. $29,500. Log trailer with hydraulic bunk F.O.B Dartmouth plant - approx. $34,500. (1988)

Operational Specifications

CTS custom manufactures trailers to suit individual logging requirements. CTS also produces trailers for the smaller scale forest operations; to work with an agricultural tractor as the prime mover.

Physical Specifications

	Pulpwood	Tree Length 8′ pulpwood	Hydraulic Bunk Tree length
Height m (ft.)	4.1 (13.5)	4.1 (13.5)	4.5 (13.5)
Length m (ft.)	13.1 (43.0)	13.1 (43.0)	13.1 (43.0)
Width m (ft.)	2.4 (8.0) 2.6 (8.5)	2.4 (8.0) 2.6 (8.5)	2.4 (8.0) 2.6 (8.5)
Weight kg (lb.)	6200 (13,670)	6690 (14,750)	6580 (14,500)

Mechanical Specifications

Suspension	Reyco Model 21B, 70, 73, 74, 83, others available
Axles	12.7 cm (5″) O.C. round rating 10 227 kg (22,500 lb.), 11 340 kg (25,000 lb.)
Tires	Bridgestone 16 ply.
Electrical	12 volt

MANUFACTURER:

Container and Trailer Services Ltd.,
120 Joseph Zatsman Dr.,
Dartmouth, N.S. B3B 1M4
TEL: (902) 464-1960
FAX: (902) 468-2072

BWS LOGGING TRAILERS

BWS Flatbed Logging Trailer

BWS manufactures wood chip trailers, models 45CT102A and 45CT102S; drop bed type model DB50; tilt top model TT15; tag-a-long models TA21,TA10. BWS trailer capacities from 6000 kg to 100 000 kg (6 to 100 ton). BWS hopper spreaders from 1.5 cu. yds. for pick-up trucks, to 14 cu. yds. for heavy duty trucks. Snow clearing equipment such as vee-plows, reversible plows and wings.

Operational Specifications

Wood chip trailers are available in model 45CT102 open top, straight frame open top, and closed top type.

All trailers are constructed of high tensile steel and comply with Section 13 of the Canadian Motor Vehicle Safety regulations.

Particular Specifications

	Model 45LF102	Model 48LF102HD
Main Frame	6.4 m (21 ft) @ 55 WF	6.4 m (21 ft) @ 68 WF
Side Rail	20 cm (8 in.) Channel	20 cm (8 in.) Channel
Crossills	15 cm (6 in.) JRI beam	15 cm (6 in.) JRI Beam

Mechanical Specifications

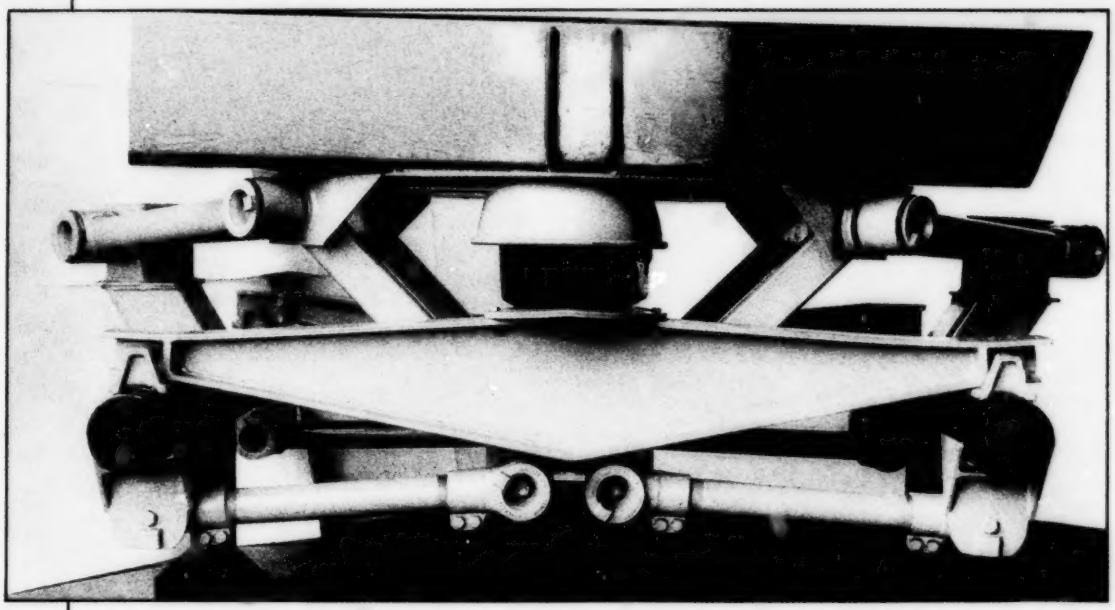
Suspension	Reyco Model 21B	Reyco Model 74C
Landing Gear	54 432 kg Holland (100,000 lb)	81 648 kg Holland (180,000 lb)
Axles	10 433 kg (23,000 lb)	10 433 kg (23,000 lb)
Flooring	3.2 cm (1¼ in.) Oak	3.2 cm (1¼ in.) Oak

Options
Tires, suspension, decks, axle configuration, stake configuration, air and spring lift axles, headboard, fifth wheel pin centres and paint color.

MANUFACTURER:

BWS Manufacturing Ltd.
10 Montana St.
P.O. Box 420
Centerville, N.B., E0J 1H0
TEL : (506) 276-4567
FAX : (506) 276-4380

CHALMERS TANDEM TRAILER SUSPENSIONS



Chalmers 700 series, rubber spring, tandem trailer suspensions

Chalmers tandem trailer suspensions are available in two models; 700 and 800 series.

Particular Specifications

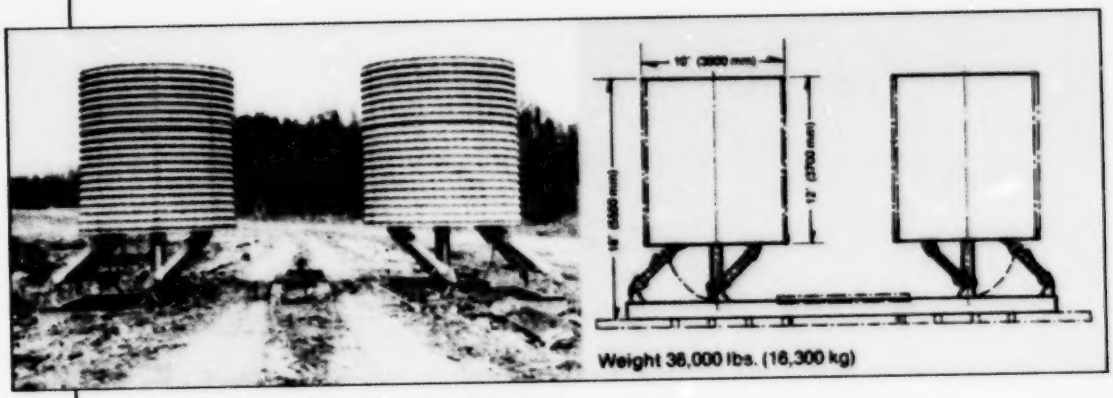
The Chalmers suspension uses two widely spaced Chalmers "Loadguard" rubber springs, which are mounted outboard of the vehicles frame. These carry the load in conjunction with floating equalizing beams which bear on the axles for frictionless movement and articulation.
The suspension is equally suitable for highway and paved road service, or off- highway operations calling for extreme axle articulation. Capacities are from 20000 kg (44,000 lb.) to 29500 kg (65,000 lb.)
Less weight, a cushioned ride, coupled with excellent stability and freedom from maintainance are its features.

MANUFACTURER:

Chalmers Suspensions Int. Ltd.,

P.O. Box 1000,
Brampton,Ontario L6V 2L9
Tel.(416) 451-1312
Telex 06-97527

KOEHRING PULPWOOD LOAD ALIGNER



The Koehring Pulpwood Load Aligner straightens 2.4 m (8 ft.) pulpwood loaded crosswise on haul vehicles.

Koehring Canada is a manufacturer of pulp mill, logging and construction machinery. Tree harvesting machinery consists of the following product line. Tree harvesters, feller forwarders, feller skidders, feller bunchers, log load aligner, log loading cranes and yarders.

Particular Specifications

Drum Height mm (ft.)	3700	(12)
O/A Height mm (ft.)	5500	(18)
Diameter mm (ft.)	3000	(10)
Weight kg (lb.)	16300	(36,000)

Operational Specifications

The Koehring pulpwood load aligner consists of two 3 m (10 ft.) diameter steel drums mounted on hinged arms. As the hauler passes through the aligner, friction of the load rotates the drums. The weight of the drums forces in protruding logs, assuring a load of minimum width and uniformity. This simple concept allows even lengthy haulers to be processed in less than 20 seconds, without the need of an operator or a power source.

MANUFACTURER:

Koehring Waterous, Division of Timberjack Inc.,

P.O. Box 490
Market St. South,
Brantford, Ont., N3T 5P6
TEL: (519) 752-6571
FAX: (519) 752-3413
TELEX: 061-81117

CANADIAN TRUCK FIBERGLASS BODIES

The CT service body is constructed of polyester resin, reinforced with an inner layer of coremat or wood. The exterior finish is long lasting gelcoat.

Canadian Truck Equipment manufactures truck service bodies, models CT83, CT96, CT108, CT167, Toppers, Cutoff-vans; all are custom built to buyer specifications.

Particular Specifications

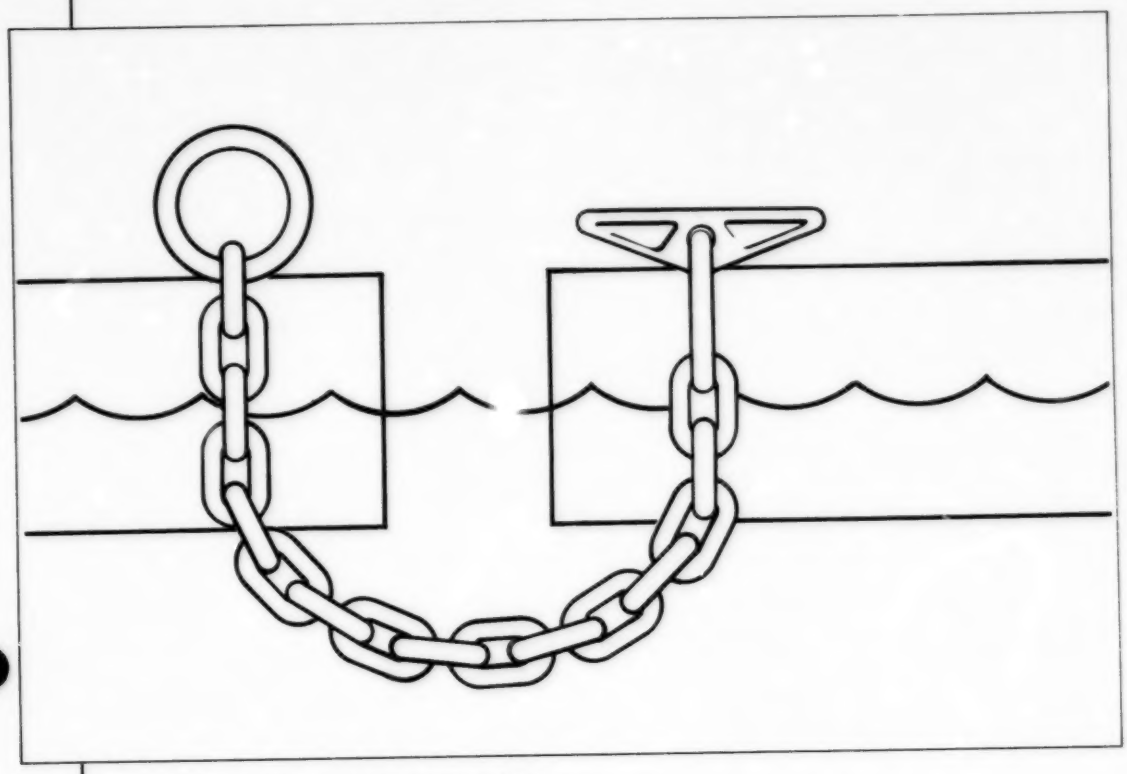
The fiberglass and service bodies, as used in forest support applications, are custom built to the purchasers specifications.
They include the following standard features: gelcoat finish with custom color, moulded, reinforced fiberglass sides and doors, stainless steel latches, chrome plated hinges, cell bulb type door seals, aluminum drip moulding and trim, lighting, complete steel under structure, deck and bulkhead.
The optional body equipment includes: side entry, pull-out drawers, tranverse compartment, shelf for tranverse compartment, 9 to 18 drawer cabinet, tailgates and treadplate/gripstop bumpers, etc.

MANUFACTURER:

Canadian Truck Equipment Inc.

5648 - Burleigh Cres., S.E.
Calgary, Alta. T2H 1Z8
TEL: (403) 253-9118
FAX: (403) 253-2163

LISTER CHAINS , BOLTS AND FORGINGS



Lister Log Boom Chain available in the Columbia River Pattern and Pacific Coast Pattern in various diameters and lengths

Lister manufactured chains range from 16 mm (5/8 in.) diam. to 50 mm (2 in.) diam. bar size, in oval link (short and long) configurations, round ring, stud link, of carbon, alloy, and stainless steel.

Operational Specifications

In-house heat treating, tapping, drilling, milling and cleaning is available at Lister Bolt & Chain.

Particular Specifications

Log Booming Chain	
nominal diam., cm (in.)	1.9 (3/4 in.) to 2.9 (1 1/8)
carbon steel and alloy	
avg breaking strength, kg (lb)	22680 (50,000 to 49896 (110,000)
approx. Weight, kg (lb)	17 (37) to 51 (113)
Log Link Alloy Sawmill Conveyor Chain	
diameter, cm (in.)	1.9 (3/4) to 3.8 (1 1/2)
breaking load, kg (lb)	29484 (65,500) to 110678 (244,000)
Thermolink Kiln Chain Shackles	2.2 cm (7/8 in.) to 2.9 (1 1/8 in.)
Buoy Chain	
overall length, m (ft)	27.4 (90)
diameter, cm (in.)	1.9 (3/4) to 5.4 (2 1/8)
Hot Forged Bolt Products	
bolts, screws, inserts	Standard bolt grades
shackles, nuts	

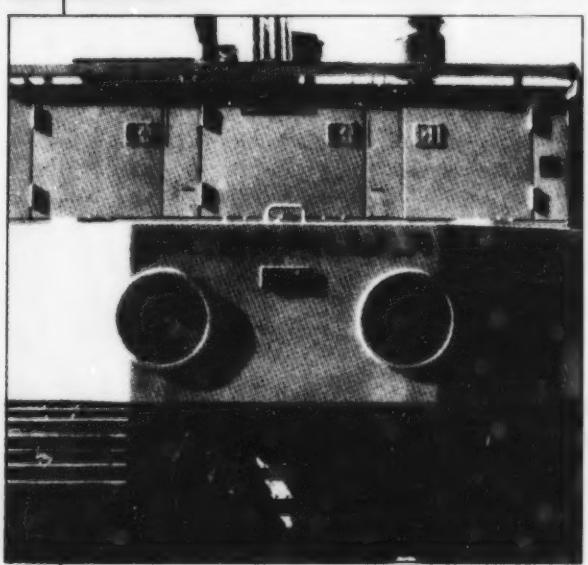
MANUFACTURER:

Lister Bolt & Chain Ltd.
1771 Savage Road
Richmond, B.C., V6V 1R1
TEL: (604) 273-5411
FAX: (604) 273-5495
TELEX: 043-55637

LOGGING AND TRANSPORT: CONSTRUCTION AND MAINTENANCE
LOGGING AND TRANSPORT

	Page
Road Construction and Maintenance	205
Excavators	
Finning Roadbuilder	206
Excavator, Attachments	
Balderson Bucket Clamp	207
Balderson Tilt Bucket	208
Weldco-Beales Ditching Buckets	209
Weldco-Beales Hydraulic Clam Shell Buckets	210
Complementary Excavator Equipment	
Weldco-Beales Excavator Cab Risers	211
Crawler Tractor Attachments	
Weldco-Beales U-Blades	212
Weldco-Beales Detachable Rake Tooth	213
Motor Graders	
Champion Graders	214
Motor Grader, Attachments	
Champion Ripper / Scarifier	215
Champion Windrow Eliminator	216
Champion Plows and Dozer Blades	217
Champion Snow Wings	218
Weldco-Beales Snow Wing	219
Complementary Road Construction and Maintenance Equipment	
Balderson Grid-Pak Compactor	220
Boss Snowplow	221
BWS Model 2010 Pick-up Spreader / Sander	222
Weldco-Beales Rotary Flail and Rotary Cutters	223
Terrafix and Terratrack Geotextile Fabric	224
Modular Bridges	
MBS Modular Bridges	225

FINNING ROADBUILDER



The Cat 235 Series C Roadbuilder with 1.3 m³ (1 3/4 yd³) payload per cycle, and with 107 cm (42 in.) bucket.

The Caterpillar 235 Series C Roadbuilder, and the Caterpillar RB EL 300 Roadbuilder, equipped by Finning, with the Finning Roadbuilder package.

Standard Roadbuilder package: (RBEL300)
- Standard upper guarding
- Turntable pans, 795 L (175 Imp. gal) counterweight and fuel tank
- Bucket cylinder line guards
- Finning heavy-duty 102 cm, 1.15 m³ (42 in., 1 yd³) bucket
- Additional light group, cab door guard, emergency escape, window guard
- Auto engine speed control

Roadbuilding package options: (RBEL300 & RB235C)
- Fire suppression system
- Bucket rippers, 163 cm (64 in.), clean-up bucket
- Finning wedge-type coupler for bucket
- Track shoe support track roller guards,
- Hydraulic bucket clamps (thumbs)
- Air conditioning

Standard Roadbuilder Package: (RB235C)
- Standard upper guarding, turntable pans
- 795L (175 Imp. gal) counterweight and fuel tanks
- Idler guards, fab. sprocket guards, bucket cyl. line guards
- Finning heavy-duty 102 cm (42 in.) bucket
- Remote mounted muffler, add. light group, auto. lube system

Physical Specifications

Operating Weight: kg (lb)	RB235C	RBEL300
With standard 76 cm (30 in.), triple grouser shoes, 2.9 m (9.5 ft) stick	45 814 (101,000)	
With standard 81 cm (32 in.) triple grouser shoes, 2.9 (9.5 ft) stick		35 335 (77,900)
Track ground contact area, m² (in.²)	6.6 (10,292)	6.2 (9,792)

Mechanical Specifications

Engine Caterpillar, kW (hp)	186 (250)	139.3 (187)
Drive: Full Hydrostatic		
Max. drawbar pull, kg (lb)	32 000 (70,500)	23 995 (52,900)

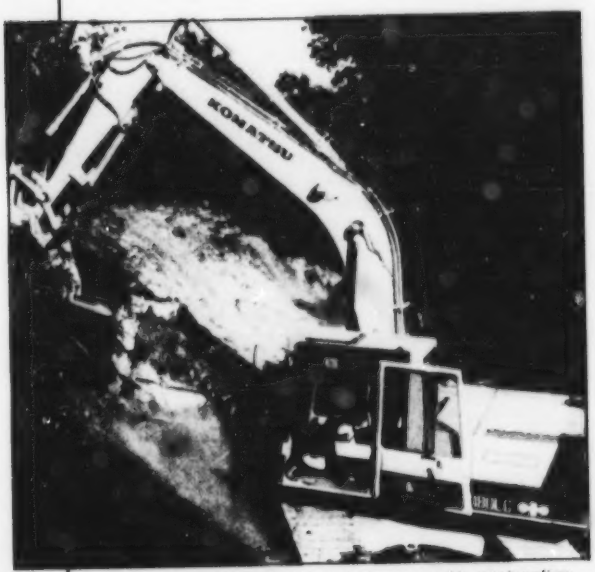
Operational Specifications

Model	RB235C	RBEL300
Digging Range		
Ground level reach, m (ft)	11.1 (36.5)	10.9 (35.83)
Digging depth, m (ft)	7.3 (24.0)	7.0 (23.0)
Max vertical wall, m (ft)	5.3 (17.5)	5.9 (19.33)
Max dump height, m (ft)	6.4 (20.83)	6.9 (22.75)

MANUFACTURER:

Finning Ltd.
555 Great Northern Way
Vancouver, B.C., V5T 1E2
TEL: (6504) 872-4444
FAX: (604) 872-2994
TELEX: 04-508717

BALDERSON BUCKET CLAMP



Balderson excavator bucket clamp used in conjunction with virtually any bucket, where gripping material is required.

Balderson custom designed, or standard models are available. Models ABT-W, BBT-W, CBT-W, DBT-W, EBT-W, FBT-W, GBT-W in wide style, with links. Models ABT-N, BBT-N, CBT-N, DBT-N, EBT-N, FBT-N, GBT-N in narrow style, with no links.

PRICE: For UH172 Hitachi, wide version with linkage, list at $11,950 F.O.B. Edmonton, Alta. (1988). Delivery of 4 to 6 weeks.

Particular Specifications

Model	Style	Links	Weight kg (lb)
ABT-W	wide	yes	442 (975)
BBT-W	wide	yes	476 (1050)
CBT-W	wide	yes	552 (1150)
DBT-W	wide	yes	567 (1250)
EBT-W	wide	yes	862 (1900)
FBT-W	wide	yes	1792 (3950)
GBT-W	wide	yes	1996 (4400)
ABT-N	narrow	no	354 (780)
BBT-N	narrow	no	404 (890)
CBT-N	narrow	no	417 (920)
DBT-N	narrow	no	476 (1050)
EBT-N	narrow	no	567 (1250)
FBT-N	narrow	no	1202 (2650)
GBT-N	narrow	no	1452 (3200)

Optional: Bucket teeth

Operational Specifications

The Balderson Bucket clamp is available in wide or narrow designs depending upon the application. Optional linkage gives greater range of motion to allow for gripping of material while moving the bucket. Optional relief valve allows bucket to overpower thumb control, while gripping a load for positioning.

MANUFACTURER:

Balderson Canada Ltd.
6400 30th Street,
Edmonton, Alta., T6P 1J6
TEL: (403) 469-9185
FAX: (403) 469-9256

BALDERSON TILT BUCKET

Balderson tilt bucket easily adjusts for slope requirements, with cylinders located for power and protection.

PRICE: For the Komatsu PC400 excavator, 167 cm (66 in.) wide bucket, list $13,600 F.O.B. Edmonton, Alta. (1988). Delivery in 4 to 6 weeks.

Particular Specifications

Bucket width,cm(in) 152(60) to 244(96)
Degrees of power tilt 45
Dual cross-over relief valve and heavy duty cylinders
Compact design, open bucket profile and lateral skid bars
Options:
- Bolt on cutting edge
- Bolt on side cutter
- Quick coupler
- Hydraulic kits for most machines

Operational Specifications

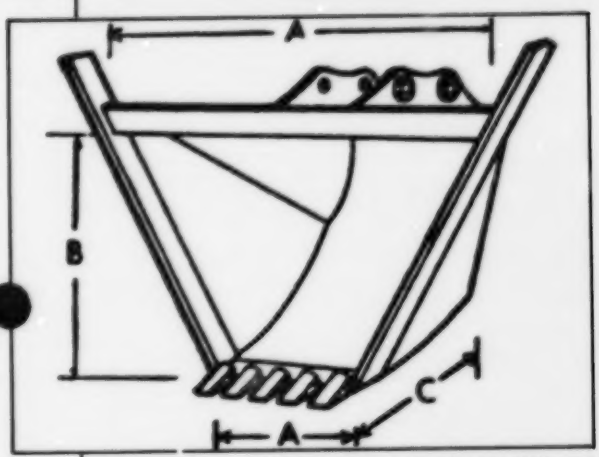
The Balderson tilt bucket is available for a wide variety of machine sizes and brands. Various bucket widths between 152 cm (60 in.) and 243 cm (96 in.) can be ordered, depending on application.

Balderson tilt buckets, for excavators, are used where a cross slope is desired, as when cleaning irrigation ditches, landscaping mountain sides, or maintaining drainage ditches.

MANUFACTURER:

Balderson Canada Ltd.
6400 30th Street,
Edmonton, Alta., T6P 1J6
TEL: (403) 469-9185
FAX: (403) 469-9256

DITCHING BUCKETS



Weldco Clean-Up Bucket (top), ideal for any ditch work, and Trapezoidal Bucket (below) to dig, clean and shape ditches in one pass.

Weldco-Beales ditching and clean-up buckets and trapezoidal buckets, models EBD8A48, EBD9B54, EBD14C60, to EBD40E72; and EBT8A24 to EBT26E48.

The Company specializes in the design and manufacture of machines and attachments for the forest industry, with a wide range of products.

Operational Specifications

The clean-up buckets are used for any ditch work and for loading soft or loose materials. The draft design allows for cohesive materials to empty completely without sticking. Drainage holes are optional.

The trapezoidal buckets allow ditches to be dug, cleaned and shaped in one pass. Extended side cutting edges are available. Custom build of tapers and base widths.

Particular Specifications

Machine Size kg (lb)	Model	Capacity m^3 (yds^3)	Width cm (in.)	Weight kg (lb)
Ditch & Clean Buckets				
6804 to 9979 (15 to 22 000)	EBD8A48	0.76 (1)	122 (48)	386 (850)
11 340 to 15 876 (25 to 35 000)	EBD9B54	0.86 (1.125)	137 (54)	499 (1100)
	EBD12B66	1.1 (1.5)	168 (66)	590 (1300)
18 144 to 24 948 (40 to 55 000)	EBD14C60	1.34 (1.75)	152 (60)	907 (2000)
	EBD20C72	1.9 (2.5)	183 (72)	1021 (2250)
27 216 to 36 288 (60 to 80 000)	EBD20D66	1.9 (2.5)	168 (66)	1452 (3200)
	EBD28D72	2.7 (3.5)	183 (72)	1610 (3550)
38 556 to 58 968 (85 to 130 000)	EBD32E72	3.1 (4)	183 (72)	2041 (4500)
	EBD40E72	3.8 (5)	183 (72)	2177 (4800)
Trapezoidal Buckets				
6 804 to 9 979 (15 to 22 000)	EBT8A24	0.76 (1)	61-203 (24-80)	771 (1 700)
11 340 to 15 876 (25 to 35 000)	EBT10B36	0.96 (1.25)	91-208 (36-82)	862 (1900)
18 144 to 24 948 (40 to 55 000)	EBT11C36	1.1 (1.33)	91-208 (36-82)	930 (2050)
27 216 to 36 288 (60 to 80 000)	EBT16D24	1.5 (2)	61-432 (24-170)	1814 (4000)
38 556 to 54 432 (85 to 120 000)	EBT26E48	2.5 (3.25)	122-366 (48-144)	2177 (4800)

MANUFACTURER:

Weldco-Beales
#410 - 6450 Roberts St.
Burnaby, B.C., V5G 4E1
TEL: 9604) 294-2222
FAX: (604) 294-1294
TELEX: 04-55103

HYDRAULIC CLAM SHELL BUCKETS

Excavator attachment- Weldco-Beales Hydraulic Clam Shell Bucket

The Company specializes in the design and manufacture of machines and attachments for the forest industry with a wide range of products.

Weldco-Beales hydraulic clam shell bucket models CSB4B, CSB6B, CSB8C, CSB12D, PCSB7D32, PCSB8D42, PCSB9E42,PCSB10E48.

Hydraulic clam shell buckets have 360 deg. continuous rotation and horizontal cylinder mountings, with stabilizer bars that synchronize the closing action. Two-, four- and six-foot extensions can be added to permit greater working depths.

The clam shell allows the logger to build roads, trim banks, handle logs and stumps. Available with or without 360 degree power rotation.

Also available are grading and backfilling blades. An added feature, if combined with a Weldco Kwik-A-Tach System, permits the changing from bucket to blade in minutes.

The Kwik-A-Tach Coupler increases the versatility of every excavator, and is adaptable to all attachments. A wedge locks all implements securely into position, eliminating expensive manual change-overs.

Particular Specifications

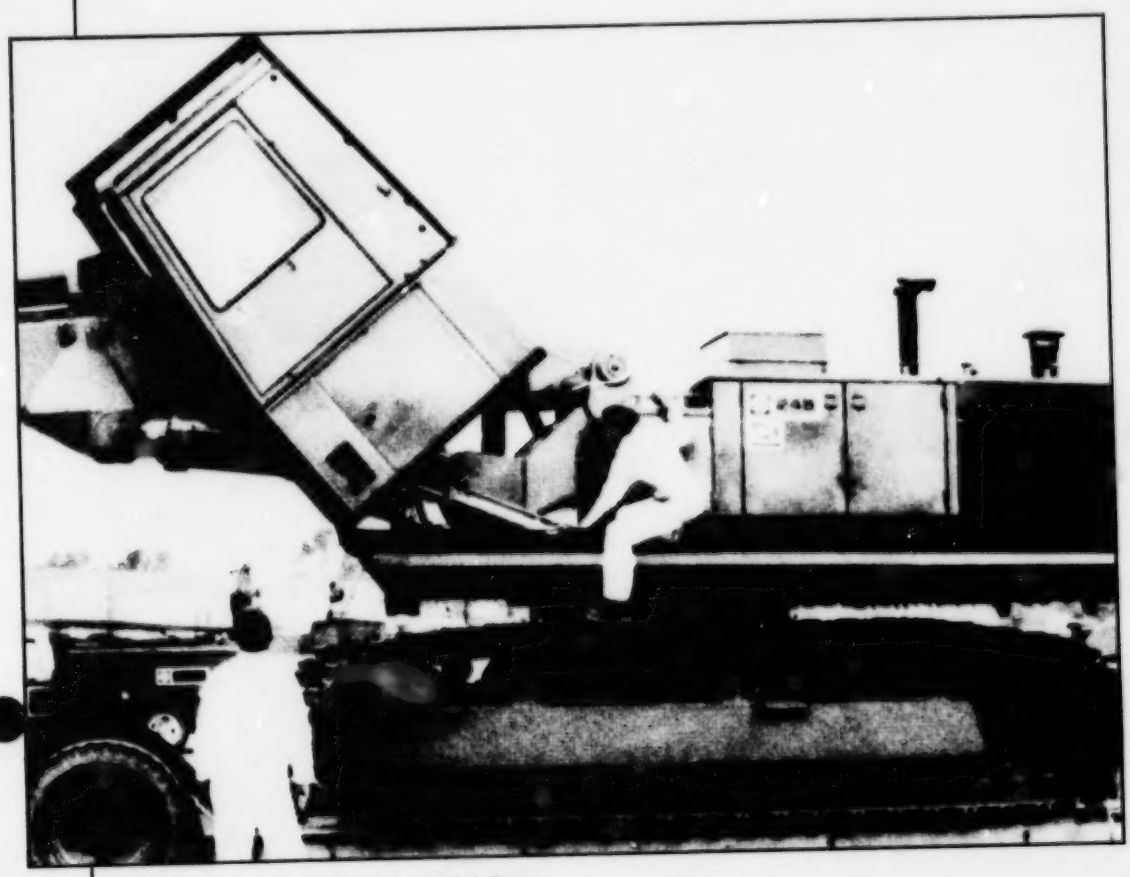
HYDRAULIC CLAM SHELL BUCKET Machine Size kg (lb)	Model	Capacity m^3 (yd^3)	Width cm (in.)	Weight kg (lb)
6804 to 9979 (15 to 22,000)	CSB4B	0.38 (0.5)	71 (28)	1100 (2,425)
11 340 to 15 876 (25 to 35,000)	CSB6B	0.57 (0.75)	81 (32)	1701 (3750)
18 144 to 24 948 (40 to 55,000)	CSB8C	0.76 (1.0)	107 (42)	1860 (4100)
27 216 to 38 556 (60 to 85,000)	CSB12D	1.1 (1.5)	122 (48)	2835 (6250)
27 216 to 36 288	PCS7D32	0.67 (0.88)	81 (32)	1962 (4325)
(60 to 80 000)	PCSB8D42	0.76 (1.0)	107 (42)	2109 (4650)
38 556 to 56 700	PCSB9E42	0.86 (1.13)	107 (42)	2155 (4750)
(85 to 125,000)	PCSB10E48	0.96 (1.25)	122 (48)	2495 (5500)

KWIK-A-TACH COUPLER Machine Size kg (lb)	Model kg (lb)	Weight kg (lb)
11 300 to 15 876 (25 to 35,000)	EKC15	95 (210)
18 144 to 24 948 (40 to 55,000)	EKC25	113 (250)
27 216 to 38556 (60 to 85,000)	EKC35	143 (315)

MANUFACTURER:

Weldco-Beales
#410 - 6450 Roberts St.
Burnaby, B.C., V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-55103

WELDCO-BEALES EXCAVATOR CAB RISERS



Weldco Excavator, Vertical, Hydraulic Cab Risers

Particular Specifications

Height: cm (in.)	61 (24), 91 (36), 107 (42), 112 (44), 122 (48), 137 (54), 152 (60)
Tilt Style:	Mechanical or hydraulic
Shipping Kit Weight: kg (lb)	930 (2050)
Amount of Hydraulic Lift from the Operator's Seat provided by Twin Cylinders: cm (in.)	107(42)
Base and Manifold	Included with kit
Optional:	
Riser Extension Hoses	
Cab Guarding of All Types	
Extra Lift Height	

The company specializes in the design and manufacture of machines and attachments for the forest industry with a wide range of products.

Weldco-Beales excavator cab risers manufactured in fixed or tilting style, with mechanical or hydraulic tilt available.

Operational Specifications

The cab raises or lowers in less than five minutes. It is complete with self contained 24 volt hydraulic power pack. All pilot line hoses are included. Cab can be moved 20 cm (8 in.) forward.

MANUFACTURER:

Weldco-Beales
#410 - 6450 Roberts St.
Burnaby, B.C., V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-555103

WELDCO-BEALES U-BLADES

Weldco-Beales U-Blades for crawler tractors and rubber tired dozers

Weldco-Beales heavy duty material U-blades for crawler tractors and rubber tired dozers, light material U-blade, wood chip U-blade, and sanitary land fill U-blade. Models HM-2 to HM-9, LM-2 to LM-9 , SL-2 to SL-9 and WCB-2 to WCB-9 (100 hp to 410 hp tractors).

Operational Specifications

Weldco-Beales U-Blades are designed to have the live rolling action of a straight blade and the cutting action of an angle blade.

The heavy duty blade is used for severe dozing operations requiring maximum strength and durability. The heavy cutting edge and corner bits are replaceable.

The light material blade features the same rolling and gathering abilities of the heavy duty type, but is designed for loose-bulk material. Cutting edges and end bits are replaceable.

The jumbo size wood chip blades have extra blade height and wing angle. The live-roll curvature blade design provides full blade rolling action.

Particular Specifications

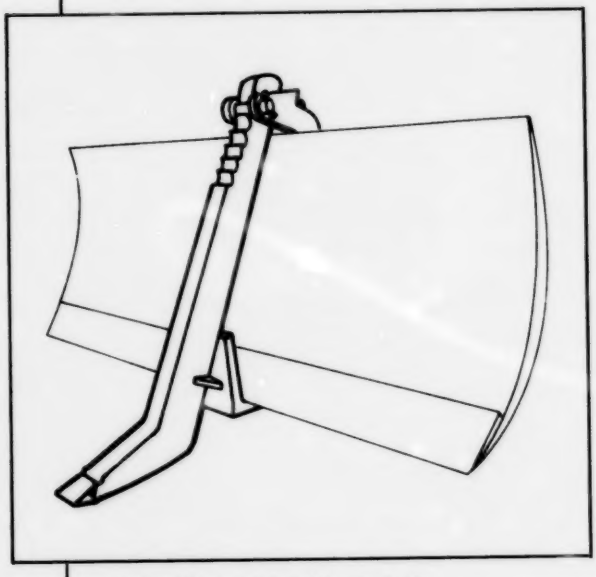
Tractor kW (hp)	Blade Model	Capacity m^3 (yd^3)	Length cm (in.)	Center Ht. cm (in.)	Weight kg (lb.)
Heavy Duty Material U-Blade: (rock, dirt, road pioneering, etc.)					
74-306 (100-410)	HM-2,3,4,5,6, 7,8,9	4.9-18 (6.5-23)	335-478 (132-188)	117-183 (46-72)	1497-4,808 (3300-10,600)
Light Material U-Blade: (loose bulk material, coal, salt, etc.)					
74-306 (100-410)	LM-2,3,4,5 6,7,8,9	6.7-27 (8.7-35)	381-610 (150-240)	127-198 (50-78)	1520-4748 (3350-10450)
Wood Chip U-Blade:					
74-306 (100-410)	WCB-2,3,4,5 6,7,8,9	8.8-34 (11.5-45)	381-610 (150-240)	147-229 (58-90)	1542-4967 (3400-10950)

MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts St.
Burnaby, B.C., V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-55103

WELDCO-BEALES DETACHABLE RAKE TOOTH



Weldco-Beales detachable rake tooth

The Company specializes in the design and manufacture of machines and attachments for the forest industry with a wide range of products. Weldco-Beales Models DRT-2 to DRT-6 detachable rake tooth to fit tractor models D3 to D8 or equivalent.

Operational Specifications

The WB detachable tooth rake is a low cost ripping tool which may be mounted on any dozer blade within minutes, by one man.

Particular Specifications

Tractor Model No.	Tooth Model No.	Fits Dozer Blade Height cm (in.)	Digging Depth cm (in.)	Tooth Thickness Weight cm (in.)	Approx. kg (lb.)
D3, TD7+8, D20 JD350/450, Ca350, Case 450	DRT-2	51 to 58 (20 to 23)	25 (10)	3.8 (1.5)	25 (55)
	DRT-3	61 to 86 (24 to 34)	33 (13)	5 (2)	45 (100)
D4, TD9, FA8 Case 850, JD550	DRT-4	76 to 102 (30 to 40)	38 (15)	5 (2)	88 (195)
D45/50, 1150, D5/D6 TD15, FA10, 1450 D55/60	DRT-5	91 to 117 (36 to 46)	43 (17)	6.4 (2.5)	152 (335)
D65, FA14, JD850 D7F, TD20E, D814A 8220, FA16 JD750	DRT-6	107 to 132 (42 to 52)	51 (20)	8 (3)	234 (515)

MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts St.
Burnaby, B.C., V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-55103

CHAMPION GRADERS

The Champion 730A motor grader, is one of Champion's line of 16 grader models sold in 88 countries around the world.

Champion is known for its grader line; Series 700, and attachments from dozer blades to snow equipment(vee plows, snow wings, plows), h.d. rippers, h.d. scarifiers, dozer blades, and push blocks.
Champion Grader Models 710/710A, 720/720A, 730/730A, 740/740A, 780/780A, 4+2 All-Wheel-Drive.

Particular Specifications

Model 730/730A*		
Overall length	843.3 cm	332 in.
Overall width	255.3 cm	100.5 in.
Overall height	335.3 cm	132 in.
Wheelbase	607.1 cm	239 in.
Tread width	212.1 cm	83.5 in.
Blade base(max)	279.4 cm	110 in.
Weight	14588 kg	32160 lb.

*A denotes articulated

Options/Attachments		
Tire options, 17.50x25		
12 pr. on 14 in. rims	409kg	900 lb.
Scarifier	703 kg	1550 lb.
4+2 All wheel drive	685 kg	1511 lb.
Wheel weights(set of 6)	680 kg	1500 lb.
Cab pressurizer	101 kg	222 lb.
Suspension seat	33 kg	73 lb.
Blade lift accumulator	15 kg	33 lb.

Optional cab structures available.

Mechanical Specifications

Model 730/730A	
Engine	Cummins 6CT8.3
Flywheel	139 kW 187HP @ 2100 RPM
Transmission	Gearco 8400

Operational Specifications

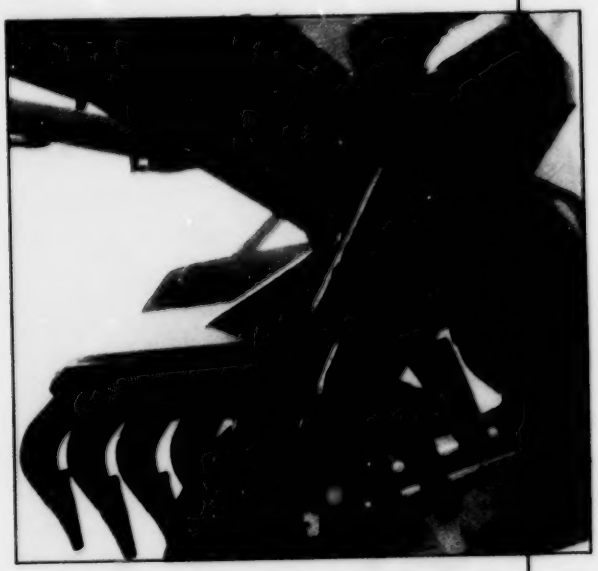
Champion's frame has a first owner lifetime warranty.Champion offers both conventional, and articulated frames.
A unique safety feature, is Champion's overload relief valve, which cushions the shock of severe blade impact, thereby minimizing damage to the blade circle system.
The modular power train system is designed to facilitate removal of the engine or transmission or final drive.
Champion attachments are available: heavy duty dozer blade, push block, scarifier, vee snow plow, one way snow plow, front mounted snow wing, rear mounted snow wing, ripper scarifier, windrow eliminator.

MANUFACTURER:

Champion Road Machinery Ltd.

220 Huckins Street
Goderich, Ontario
N7A 4C8
TEL: (519) 524-2601
FAX: (519) 524-5175
TELEX: 069-55175

CHAMPION ATTACHMENTS, RIPPER/SCARIFIER



Champion attachments; the rear mounted ripper/scarifier (left), and scarifier mounted behind the front wheels (right).

Champion specializes in building motor graders; Series 700, and a custom line of attachments from dozer blades to snow equipment (vee plow, snow wing, plow), h.d. rippers, h.d. scarifier, dozer blades, and push blocks. The attachments increase the versatility and productivity of the grader line. Champion attachments are made by specialists to meet the unique performance characteristics required in grader applications.

Particular Specifications

Ripper/Scarifier	
Standard Weight, kg (lb.)	953(2100)
No. Ripper shanks	3
Ground clearance, cm (in.)	52 (20.50)
Max. penetration, cm (in.)	30.5 (12)
Width of cut, cm (in.)	218.4 (86)
No. scarifier teeth, max.	9
No. ripper teeth, max.	5
Scarifier	
Weight, kg (lb.)	640(1410)
Ground clearance, cm (in.) teeth instal.	31.1 (12.25)
Max. penetration, cm (in.)	24.8 (9.75)
Width of cut, cm (in.)	121.9 (48)
No. of teeth	11
Tooth angle adjust.	manual

Mechanical Specifications

Ripper/Scarifier	
Hydraulic controls type	power hyd. system
Controls	electric over hyd.
Lift cylinders	2
Tilt cylinders	2
Deg. of tilt	27
Attachment to machine	direct to frame
Ripper	
Hydraulic controls type	power hyd.
Controls	lever in cab
Lift cylinder	double acting

Operational Specifications

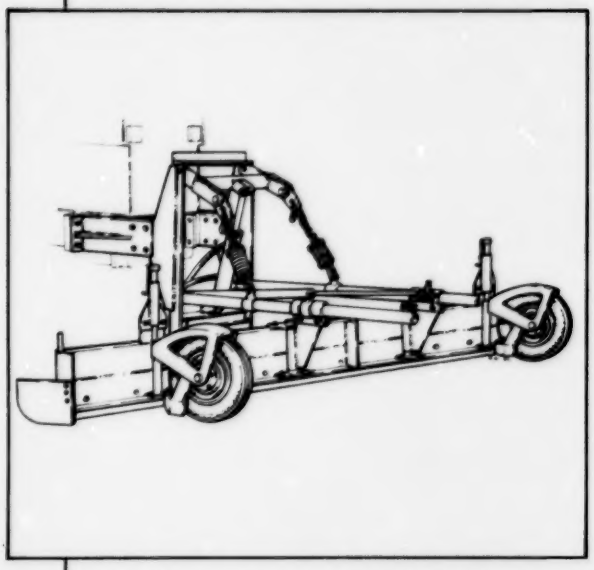
The rear mounted ripper/scarifier is equipped with 3 ripper shanks as standard, and optional scarifier teeth. Manual or hydraulic tooth angle is available with 3 manual tilt settings or completely variable hydraulic tilt option. The attachment allows trouble free rock removal, asphalt ripping, stump removal and road surface loosening.

Mounted behind the front wheels, the scarifier is used for breaking up compacted material, asphalt, rocky subgrade and ice to facilitate grading. Eleven adjustable, replaceable teeth are standard, allowing a 121.cm (48 in.) cut.

MANUFACTURER:

Champion Road Machinery Ltd.
220 Huckins Street
Goderich, Ontario
N7A 4C8
TEL: (519) 524-2601
FAX: (519) 524-5175
TELEX: 069-55175

CHAMPION ATTACHMENTS,WINDROW ELIMINATOR



Champion attachment, windrow eliminator, which eliminates the need for an extra pass to spread the windrow on the forest access road.

Champion specializes in building motor graders; series 700, and a custom line of attachments from dozer blades to snow equipment (vee plow, snow wing, plow), h.d. rippers, h.d. scarifier, dozer blades, and push blocks. The attachments are designed to increase the versatility and productivity of the grader line. Champion attachments are made by specialists to meet the unique performance characteristics required in grader applications.

Particular Specifications

Blade length, m (ft)	3.96 (13)
Depth (incl. Cutting edge), cm (in.)	30.5 (12)
Width of cut (@ 35 deg. angle), m (ft)	3.2 (10.5)
Discharge side	Right or Left
Cutting edge width, cm (in.)	22.9 (9)
Thickness, mm (in.)	12.7 (1/2)
Material	SAE 1080 Carbon Steel
Wheels, Tire size	4.00 x 8
Mounting	Swivel Caster
Drawbar type	Dual, Double X pipes
Weight, kg (lb.)	590 (1300)

Mechanical Specifications

Lift frame type	Parallel lift slider
Controls, raising or lowering	Hydraulic
Spreading depth	Manual adjustment

Operational Specifications

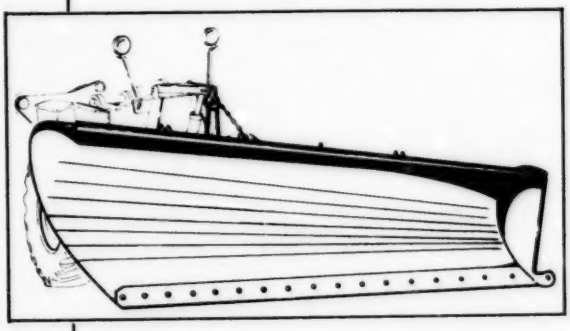
Eliminates the need for extra passes in order to spread windrows, and saves time and fuel, while providing a safe surface for traffic.

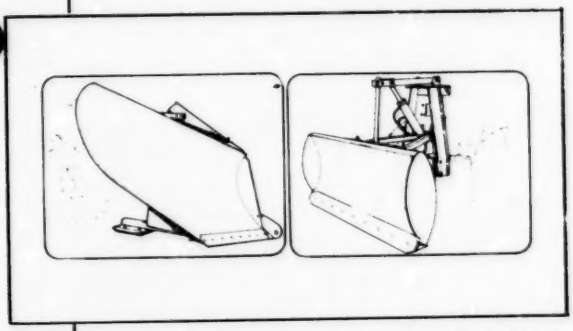
MANUFACTURER:

Champion Road Machinery Ltd.

220 Huckins Street
Goderich, Ontario
N7A 4C8
TEL: (519) 524-2601
FAX: (519) 524-5175
TELEX: 069-55175

CHAMPION ATTACHMENTS, PLOWS AND DOZER BLADES





Champion attachments, rear mounted(left), and front mounted(right) snow wings.

Champion specializes in building motor graders; Series 700, and a custom line of attachments from dozer blades to snow equipment(vee plow, snow wing, plow), h.d. rippers, h.d. scarifier, dozer blades, and push blocks. The attachments increase the versatility and productivity of the grader line. Champion attachments are made by specialists to meet the unique performance characteristics, required in grader applications.

Particular Specifications

One way plow	
Blade width,m(ft)	2.74(9)
Height at tip,m(ft)	1.57(5.17)
Height at nose, m(ft)	0.84(2.75)
Plow angle	35deg.
Weight, kg (lb.)	998(2200)
Mounting	To grader nose plate
Vee plow	
Width,m(ft)	2.7(9) or 3.1(10)
Height at tips,m(ft)	2.74(9) 2.13(7) 3.05(10) 2.18(7.2)
Height at mast,m(ft)	2.7(9) 1.32(4.3) 3.1(10) 1.32(4.3)
Skid shoes	Adjustable replacable
Mounting	To grader nose plate
Dozer blade	
Length,m(ft)	2.4(8) 2.7(9) opt.
Depth, cm(in)	106.7 (42)
Thickness, mm(in)	4.7(3/16)
Blade weight, kg(lb.)	726(1600)
Mounting	H.D. A-frame on grader nose

Hydraulic valve controls operated from cab

Operational Specifications

The Champion heavy duty dozer blade is applied for any work requiring heavy loading or high impact, such as spreading, clearing bush, backfilling, and snow removal.

The high carbon steel edge is reversible for longer wear. The blade is curved to move more material. End plates minimize spillage. Tilt angle is adjustable. Parallel lift mechanism maintains tilt angle throughout the range of motion.

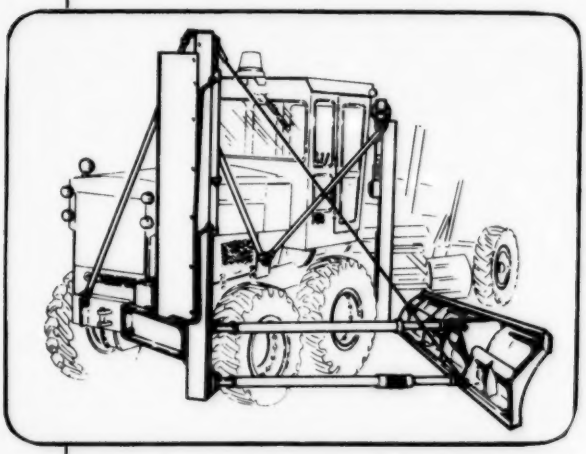
The Vee plow features crimpled snow repellent design. Adjustable skid shoes allow proper plow positioning for all applications. The reversible high carbon steel edges, allow for double edge life.

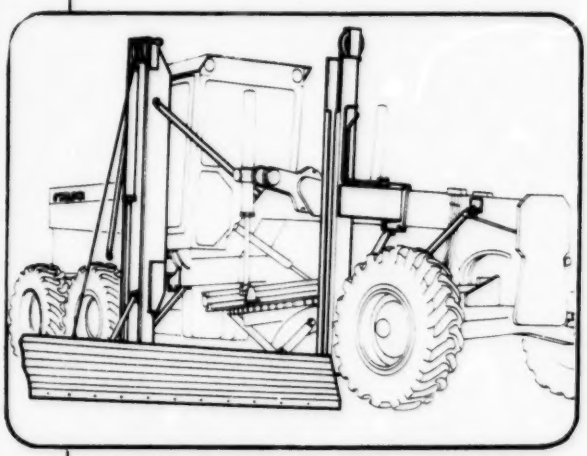
MANUFACTURER:

Champion Road Machinery Ltd.

220 Huckins Street
Goderich, Ontario
N7A 4C8
TEL: (519) 524-2601
FAX: (519) 524-5175
TELEX: 069-55175

CHAMPION ATTACHMENTS,PLOWS AND DOZER BLADES





Champion attachments;One way plow,vee plow, heavy duty dozer blade

Champion specializes in building motor graders: Series 700, and a custom line of attachments from dozer blades to snow equipment (vee plow, snow wing, plow), h.d. rippers, h.d. scarifier, dozer blades, and push blocks, to increase the versatility and productivity of the grader line. Champion attachments are made by specialists to meet the unique performance characteristics, required in grader applications.

Particular Specifications

Length at cutting edge, m (ft)	3.8 (12.5)
Height Front, cm (in.)	61 (24)
Rear, cm (in.)	83.8 (33)
Weight, kg (lb.)	1406 (3100)

Torque tube wing construction
Two 76mm(3in) diam. adjustable standoff arms with shock absorbers
Two heavy duty masts with max. wing height of 121.9 cm (48 in.) front, and 296 cm (116.5 in.) rear

Operational Specifications

With the rear mounted wing design, the moldboard can be utilized in conjunction with the wing, offering a wider clearing width per pass. The design allows the machine freedom of movement around obstacles encountered at high speed. The machine absorbs more shock from impact encountered by forward mounted wings.
With the front mounted wing, it requires less horsepower as the load never stops moving as snow continuously flows from plow to wing.
There is also improved maneuverability, better control and improved visibility.

MANUFACTURER:

Champion Road Machinery Ltd.

220 Huckins Street
Goderich, Ontario
N7A 4C8
TEL: (519) 524-2601
FAX: (519) 524-5175
TELEX: 069-55175

WELDCO-BEALES MOTOR GRADER SNOW WING

The Weldco-Beales snow wing, standard or heavy duty, with cable boom accessory, which aids in lifting blade tip in ditch cleaning and high wing applications.

The Company specializes in the design and manufacture of machines and attachments for the forest industry with a wide range of products. Weldco-Beales attachment models SW-12S-F, D, R, H standard, and models SW-12H- FC, R, and D heavy duty, designed to match the performance rating of the motor grader.

Operational Specifications

Wing height adjustment for bank sloping is accomplished from the cab. The wing will sweep from 25 to 55 degrees, and can work in unison with grader blade angles to 45 degrees. With the wing raised to transport position, the grader can be operated straight on, crabbed, or articulated in any direction. This is particularly useful in tight spots, or along the highway.

Physical Specifications

Model	Blade Length m (ft)	Blade Thick. cm (in.	Blade Ht. cm (in.) (w/o edge)	Blade Lift m (ft) @Heel @Outer	Weight kg (lb.)
STANDARD SW-12SF*, SW-12SR, SW-12SH, SW-12SD	3.7 (12)	0.19 (3/16)	89 (35)	1.5 (5) 3.0 (10)	1339 (2952)
Heavy Duty SW-12HFC, SW-12HR, SW-12HD	3.7 (12)	0.64 (1/4)	89 (35)	1.5 (5) 3.0 (10)	1640 (3616)

*F = Fixed, R = Ripper mounted, H = Hyd. Elevating

Options:
Cable boom which aids in lifting the blade
Left hand configurations
4.3 m (4-foot) blade
Rear reinforcing struts when operating with wing

MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts Street
Burnaby, B.C.
V5G 4E1
TEL: (604) 294-2222
FAX: (604) 294-1292
TELEX: 04-55103

BALDERSON GRID-PAK COMPACTOR

The Grid-Pak is attached to a vibratory compactor to enhance the machine's rock crushing capability. It is manufactured in six segments for easy identification.

Balderson Grid-Pak compactor can be adapted to most manufacturers vibratory compactors.

PRICE: The price for CAT CS553 size machine is $12,300.00 list F.O.B. Edmonton, Alta. (1988). Delivery is 4 to 5 weeks.

Operational Specifications

The Grid-Pak is used in logging road maintenance applications. Gravel that has moved to the ditch, can be reclaimed without fear of leaving rocks on the road to damage truck tires. The grids compact dirt and rock to a hard even grade, crushing even river rock to form part of the road service.

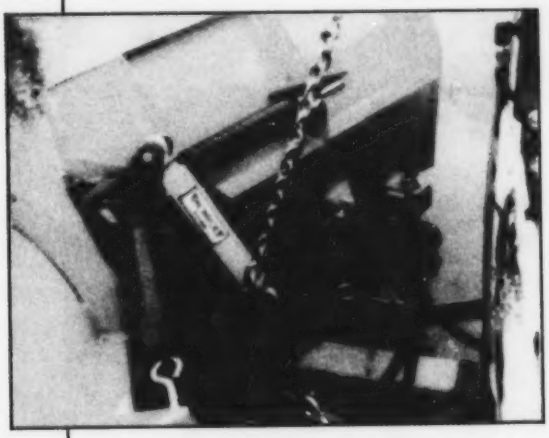
In a typical application, a motor grader is used to pull gravel back from the shoulder and ditch on the first pass. During subsequent passes, large rocks are normally graded off to the side of the road, often taking valuable gravel along with them. The Grid-Pak eliminates the waste of valuable aggregate by compacting it in place. Large rocks are simply crushed on the spot. In soft spots rocks are punched into the surface, and gravel is packed, creating a hard, stable, travel surface.

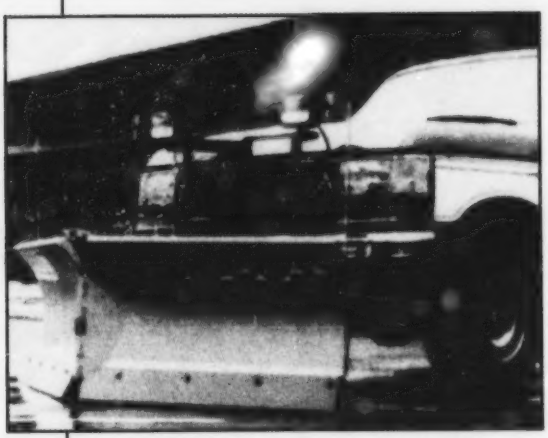
MANUFACTURER:

Balderson Canada Ltd.

6400 30th Street,
Edmonton, Alta., T6P 1J6
TEL: (403) 469-9185 FAX: (403) 469-9256

BOSS SNOWPLOW





The 2.8m(9'2") Model snowplow is perfect for dual wheel, 1-ton trucks. The centre hinge blade assembly permits blade to be placed in the vee, angle, carry and straight positions for different applications

Designed and built by Canadian Snow Boss for the 1/2 ton, 1 ton-dual wheel and sport utility vehicles. Available in 2.3 m (7'6") Model, 2.5 m (8'2") Model and 2.8 m (9'2") Model.

Operational Specifications

The in-cab truck-to-plow connect/disconnect, permits the operator to drive into the plow and lock it.

The blade is adapted to weather conditions, in the straight, V and carry position from inside the cab.

Particular Applications

Model	7'6"	8'2"	9'2"
Length of mold board, m (ft)	2.3 (7.5)	2.5 (8.17)	2.8 (9.17)
Thickness, gauge	11	11	11
Height, cm (in.)	64 (25.5)	75 (29.5)	75 (29.5)
Blade edge, cm (in.)	1 (3/8)x15 (6)	1.3 (1/2)x15 (6)	1.3 (1/2)x15 (6)
Reinf. ribs	6	6	6
T-Frame	10 (4)x5 (2)x.3 (5/16) rec. tube	12.7 (5)x7.6 (3)x.6 1/4) rec. tube	
Weight, kg (lb.)	306 (675)	420 (925)	431 (925)

Mechanical Specifications

Hydraulics			
Pump,	heavy duty, under hood installation, internal gear type		
Reservoir, cm^3 ($in.^3$)	2048 (125)	2048 (125)	2048 (125)

MANUFACTURER:

Canadian Snow Boss Inc.

188C Parc Industriel
P.O. Box 467
Beloeil, Que.
J3G 6B6
TEL: (514) 464-4090

BWS MODEL 2010 PICK-UP SPREADER SANDER

BWS Model 2010 Pick-up Spreader

BWS manufactures a full line of hopper spreaders : models 2010 , 2011, 2012, 2020, 2030, 2040, 2050, 2060, 2070 from 1.2m³ (1.5yd³) to 10.7m³ (14yd³) to fit a pick-up or heavy duty truck with hydraulic drive or self-contained gas engine.

Particular Specifications

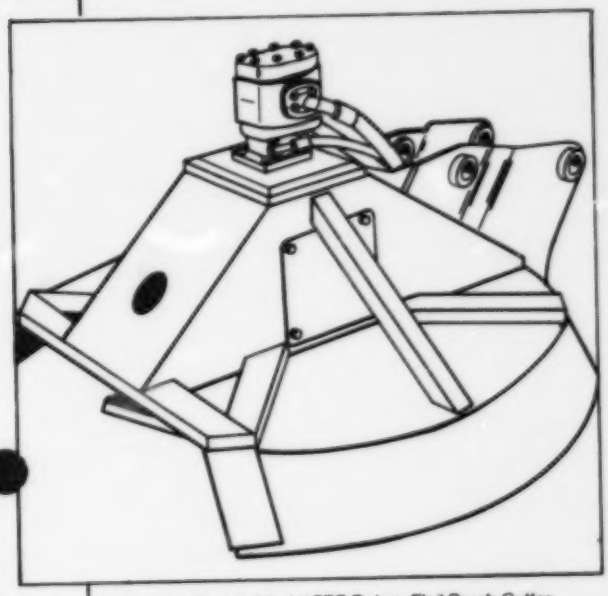
MODEL	2010	2070
Capacity, m³(yd³)	1.2(1.5)	10.7(14)
Length m(in.)	1.8(72)	3.7(144)
Width m(in.)	1.4(56)	2.4(92)
Body Height cm(in.)	91(36)	173(68)
Body Material	14ga	High-Tensile Low Alloy
Conveyor Width cm(in)	36(14)	61(24)

Options:
Complete light package, rear bumper, hopper heat system, automatic metering device and fenders. Two warning lights are standard on the model 2070.

MANUFACTURER:

BWS Manufacturing Ltd.
10 Montana St.
P.O. Box 420
Centerville, N.B.
E0J 1H0
TEL: (506) 276-4567
FAX: (506) 276-4380

WELDCO-BEALES ROTARY FLAIL & ROTARY CUTTERS



Weldco-Beales Model ERF Rotary Flail Brush Cutter

The Company specializes in the design and manufacture of machines and attachments for the forest industry with a wide range of products.

Weldco-Beales model ERF series rotary flail, and Model ERC series rotary cutter. W.B. brush cutters are available for most models and makes of backhoes and excavators. Larger Brush Cutters (over 152 cm(60in)) are available upon request. Installation is available at extra cost.

Operational Specifications

The Weldco-Beales rotary flail cuts small trees, grass, as well as dense bush. Cutter blades are made from heat treated alloy steel mounted on a circular disc, and are replaceable. Knives can swing back after hitting a solid object to minimize damage.

Rotary cutter teeth on the edge and bottom of the cutting disc provide downward mulching. Secondary shredding and hauling is not required. Movable opening allows the operator to choose the direction of dispelled debris and allows the cutting of 15 cm(6 in.) stems. Flywheel action of the cutter allows storage of cutting energy, providing more effective cutting power with less available energy.

Used for maintaining logging and rural roads, bridge approaches, railway grades, and power right-of-ways. Allows cutting within 13 cm (5 in.) of obstacles. Cuts and shreds brush and trees up to 15 cm (6 in.) in diameter.

Physical Specifications

Machine Size Capacity m(yd)	Model	BLade Dia. cm(in)	Weight kg (lb.)
0.34 to 0.57 (⅜ to ⅝)	ERF36	91(36)	308(680)
0.57 to 0.91 (⅝ to 1)	ERF52	132(52)	635(1400)
0.91 to 1.82 (1 to 2)	ERF60	152(60)	816(1800)
0.34 to 0.57 (⅜ to ⅝)	ERC36	91(36)	295(650)
0.57 to 0.91 (⅝ to 1)	ERC48	122(48)	499(1100)
0.91 to 1.82 (1 to 2)	ERC60	152(60)	599(1320)

Mechanical Specifications

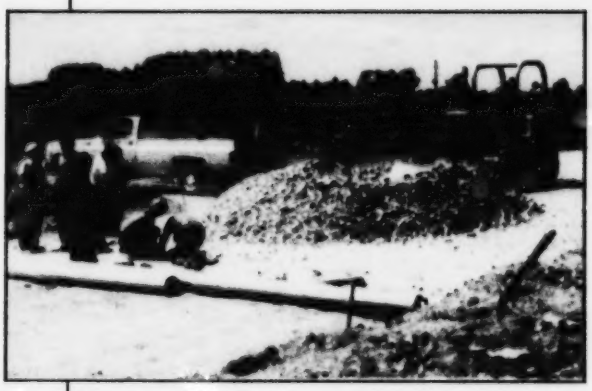
	Model ERF	Model ERC
Operating Speed, r.p.m.	1200	400
Brush Cutter Sizes	Vary according to machine power and lift capacity weight requirements	
Options	Tilt	Tilt on long or short extension arms

MANUFACTURER:

Weldco-Beales

#410 - 6450 Roberts Street,
Burnaby, B.C., V5G 4E1
TEL: (604) 294-2222 FAX: (604) 294-1292
TELEX: 04-55103

TERRAFIX AND TERRATRACK GEOTEXTILE FABRIC



Terratrack 2415 being placed on road subgrade.

Terrafix: non-woven geotextiles ranging from a thin 2.3 mm model 200R, to models 240R, 270R, 360R, 370RS, 800R at 5.0 mm thickness, up to 1600R at 6.5 mm. Terratrack: woven geotextiles, ranging from model 400 at 0.75 mm thickness, to model 200 at 0.72 mm, 24-15 at 0.45 mm, and 24-11 at 0.51 mm thickness.

Operational Specifications

Geotextile fabric uses are primarily for soil stabilization, and hydraulic engineering, such as subdrainage, road underlay, gabion protection, rip rap channel lining, shore protection and containment. Terrafix is a non-woven, needle-punched, composite mat, whereas Terratrack is a woven geotextile.

Non-woven geotextiles are long lasting, rotproof, not subject to degradation in the field, of high strength at high elongation, and have stable permability.

The woven geotextiles require lower capital expenditure, with filtration and drainage characteristics typically lower than the Terrafix non-woven geotextiles. They offer soil stabilization solutions with low initial costs.

Particular Specifications

	Terrafix	Terratrack
Mass (g/m^2)	200 to 470	106 to 228
Thickness (mm)	2.3 to 4.0	0.51 to 0.75
Grab Tensile (N)	400 to 1000	697 to 1400
Ball Burst (N)	1100 to 2350	710 to 3400
Standard Roll Sizes, m	3.3x150 to 3.75x50 4.4x150	4.57x100 to 4.27x100 5.3x100
Standard Roll Weight (kg)	100 to 90	55/60 to 100

MANUFACTURER:

Terrafix Geosynthetics Inc.

69 Westmore Drive
Unit 3
Toronto, Ontario
M9V 3Y7
TEL: (416) 745-7290
FAX: (416) 748-8240
TELEX: 06-989136

MODULAR BRIDGES

Modular's 283-foot Davie River Crossing

MBS offers fixed bridge designs, portable bridge systems and fabricated modular steel structures built to specifications. The Company also offers site inspections, custom engineering to suit the requirements of the site, component fabrication, delivery of the structure to the site, development of the substructure and complete installation.

Particular Specifications

Modular Bridge Systems offer portable bridge designs, and fabricated modular steel structures built to meet particular specifications of site. The Company has developed a system using precast concrete deck panels, which are easy to install, give long service and require almost no maintenance.

MANUFACTURER:

Modular Bridge Systems

Division of Surespan Construction
8035 Alexander Road
Delta, B.C.
V4G 1C5
TEL: (604) 946-7547
FAX: (604) 946-1514

FORESTRY SUPPORT

Page

Fire 227

Fire Protection 229

Air Tankers, Helitankers
- Conair F27 Firefighter Air Tanker 230
- Conair Firecat & Turbocat Air Tankers 231
- Conair Helitankers 232

Wheeled Fire Control Units
- Wajax Fire Control Unit TFG503 233

Manual Fire Control Units
- Wajax Fire Pumps 234

Complementary Fire Control Accessories
- Blizzard Wizard Foam Nozzles 235
- Fireflex Pick-Up Truck Tank 236
- Fireflex Portable Reservoirs 237
- Fireflex Helicopterable 300 Tank 238
- Fireflex Flex-Pak Backtank 239

Fire Monitoring
- FTS 6100 Fire Weather Station 242
- FTS Thermologger 243

Portable Sawmills 245

Bandmills
- The Bonter Board Bandit Portable Sawmill 246
- Enercraft Silva-Saw Portable Band Sawmill 247

Circular Sawmills
- Almac Port-A-Mill Portable Sawmill 248
- Brunette Porto-Mill Portable Sawmill 249
- Desjardins P.T.O. Portable Sawmill 250

Complementary Portable Sawmill Equipment
- Desjardins Portable Shingle Mill 251
- Desjardins Portable Edger 252
- Desjardins Individual Resaw 253

FORESTRY SUPPORT: FIRE PROTECTION

CONAIR F27 FIREFIGHTER AIR TANKER

The F27 Firefighter is a turbine-powered, high-capacity, air tanker for use in aerial forest fire fighting.

Conair F27 Firefighter high capacity air tanker. Conair also manufactures the Conair Firecat, and Turbo Firecat medium capacity air tankers, Conair Helitankers and Conair Aerial Spray and Aerial Fertilizer Systems.

Operational Specifications

The Conair F27 Firefighter features an advanced delivery system for the aerial control of forest fires. The aircraft is capable of delivering chemical retardant, water and foam suppressants.

The F27 Firefighter offers the benefits of turbine power together with retardant delivery effectiveness. It has multi-role capabilities including aerial spraying, transportation of equipment and personnel, pararescue or ambulance operations.

Physical and Mechanical Specifications

Maximum Takeoff Weight, kg (lb.)	20412 (45,000)
Retardant Payload, kg (lb.)	6731 (14,800)
Endurance (Full Payload), Hours	3.4
Normal Cruise Speed, Knots	227
Normal Drop Speed, Knots	125
Retardant Delivery System	
Total Useful Volume, L (I. gal)	6365 (1,400)
Loading Rate, L (I. gal)/min.	1514 (333)
Number of Compartments & Doors	8
Retardant Coverage Levels, mm (I. gal)	0.2 to 4.0 (0.4 to 8) thickness
Average Width of Retardant Line, m (ft)	9 (30)
Microcomputer Door Control Time Between Door Openings, sec.	0.1 to 0.99
Optional Foam Injection System	

MANUFACTURER:

Conair Aviation Ltd.

P.O. Box 220
Abbotsford, B.C.
V2S 4N9
TEL: (604) 863-1171
FAX: 604) 853-9017
TELEX: 04-363529

CONAIR FIRECAT & TURBO FIRECAT AIR TANKERS

The Firecat (top) features a technologically advanced 3,295 litre retardant delivery system. The Turbo Firecat (bottom) is a turbine-powered conversion. Over 30 Firecats have been converted for forest fighting operations (1988).

Conair Firecat and Turbo Firecat medium capacity air tankers. Conair also manufactures the Conair F27 Firefighter (High Capacity) Air Tanker, Conair Helitankers and Conair Aerial Spray and Aerial Fertilizer Systems.

Operational Specification

The Conair Firecat is a medium-capacity air tanker used for the aerial control of forest fires. The aircraft is capable of delivering chemical retardant, and water-foam suppressants. The retardant delivery system is computer-controlled for maximum drop efficiency. The Conair Turbo Firecat is an extensive modification of the piston engined Firecat and features Pratt and Whitney PT6A-67AF turbine engines, a single-point pressure refueling system, a new stall warning system, and a completely updated cockpit and aircraft systems.

Physical & Mechanical Specifications

Model	Firecat	Turbo Firecat
Maximum Takeoff Weight, kg (lb.)	11818 (26,000)	12443 (27,500)
Operating Empty Weight, kg (lb.)	6895 (15,200)	6900 (15,250)
Endurance, Full Payload, Hrs.	4.5	5.1
Minimum Field Length, m (ft)	914 (3,000)	700 (2,300)
Cruise Speed, Knots	175	220
Normal Drop Speed, Knots	120	120
Retardant Delivery System		
Normal Retardant Load, L (gal)	3295 (725)	
Foam Concentrate Load, L (gal)	173 (38)	
Tank Length, cm (in.)	325 (128)	
Tank Width, cm (in.)	127 (50)	
Tank Depth, cm (in.)	87 (34.3)	
Number of Compartments	4	
Weight of Tank, kg (lb.)	328 (725)	
Door Sequencing	4-single-door drops 2 two-door salvoes 1 four-door salvo	

MANUFACTURER:

Conair Aviation Ltd.

P.O. Box 220
Abbotsford, B.C.
V2S 4N9
TEL: (604) 853-1171
FAX : (604) 853-9017
TELEX: 04-363529

CONAIR HELITANKERS

A Conair B212 Helitanker (top), demonstrates the canopy penetration provided by its 1360 litre, rigid-door firefightint tank. The Conair AS350B1 Helitanker (bottom) is shown taking in water with its hover-fill tank system

Conair manufactured firefighting systems are available for the Bell 205, Bell 212, Aerospatiale AS 350B1 Ecuriel, Aerospatiale SA 315B Lama Helitankers and several other helicopter types. These systems can consist of the retardant delivery tank, a self loading system for tank filling, a foam injection system, a off-load system to fill ground tanks, and a rappelling system to lower firefighters directly into a fire area.

Operational Specifications

Conair Helicopters are versatile and effective firefighting tools. In addition to the retardant delivery tank, the systems feature a self loading system for tank filling during a hover at remote water sources, a foam injection system and an off-load system. The self loading system can operate in as little as one half metre of water.

Physical and Mechanical Specifications

Model	SA330*	BELL 205/212	SA315B	AS350B1
Water Load, L (I gal)	2400 (545)	1360 (309)	900 (205)	800 (182)
Foam Concentrate Load, L (I gal)	150 (34)	175 (40)	80 (18)	75 (17)
Tank Length, cm (in.)	210 (83)	419 (165)	358 (141)	303 (119)
Tank Width, cm (in.)	90 (35)	127 (50)	127 (50)	140 (55)
Tank Depth, cm (in.)	154 (61)	43 (17)	39.5 (16)	34.5 (14)
Weight of Tank, kg (lb.)	280 (617)	145 (320)	145 (320)	155 (342)
Number of Doors	2	2	2	2
Door Actuation	Hydraulic	Hydraulic	Hydraulic	Hydraulic
Drop Speed, Knots	40-80	40-80	40-80	40-80
Normal Drop Height m (ft)	50 (164)	20-30.5 (66-100)	20-30.5 (66-100)	20-30.5 (66-100)
Tank Removal Time, Hours	8	0.25	0.25	0.25

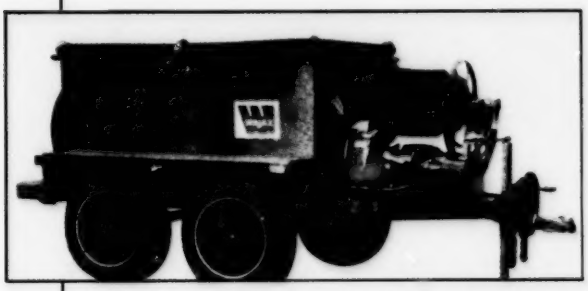
*SA330 tank system consists of upper cabin section and lower chute section. Length and width refers to cabin tank; depth refers to dimension over both upper and lower sections.

MANUFACTURER:

Conair Aviation Ltd.

P.O. Box 220
Abbotsford, B.C.
V2S 4N9
TEL: (604) 863-1171
FAX: (604) 853-9017
TELEX: 04-363529

WAJAX FIRE CONTROL UNIT TFG503



Portable, low-cost, self-contained, trailer-mounted, fire control unit. Optional fender mounted tool and accessory boxes are also available

Wajax manufactures centrifugal fire pumps Mark series models 26, 3, B1-11, BB-4, 40, 40D, 75. Wajax also manufactures Wajax hand pumps, pump unit accessories (valves, couplings, threaded accessories, hose line accessories) fire control hand tools, high pressure fire hose and repair equipment, fire hose testing equipment and self-contained trailer mounted fire control units.
Tank sizes available are in 75, 125, 200 U.S. gal. Other pumps are available for slip-on tanks.

Particular Specifications

Model TFG503
1890 L (400 Imp. gal.)
Mark 3 Fire pump, c/w fuel tank
Manual live hose reel with friction brake
Length 30 m (100 ft.), size 25 mm (1 in.)
Combination nozzle 25 mm (1 in.)
Pump priming system for overboard drafting
Tank outlet valve, lower mounted
Plumbing assembly for overboard drafting
Vibration base for pump mounting
Easy-to-read clear-tube water level indicator
Suction hose and footvalve
Four-wheel heavy duty trailer:
- Overall Length 388 cm (11 in.)
- Overall Width 187 cm (6.5 in.)
- Four wheel electric brakes
- Heavy duty jack
- Heavy duty construction
- Individual wheel springs
- Walking beam action
- Electric tail-stop and turn indicators
- Three position ball hitch
- One spare tire mounted on rim
- Two 1360 kg (3000 lb.) axles 2722 kg (6000 lb.)

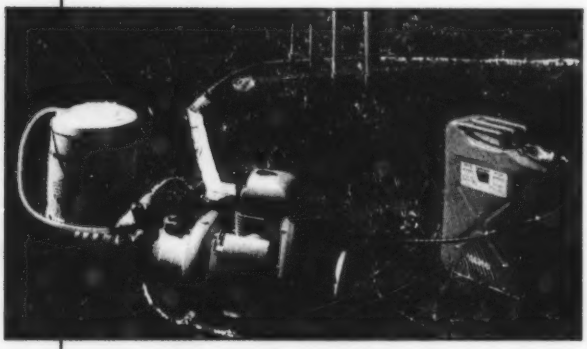
Flat top fenders can be used for hose storage, etc.

Tanks can also be made to the buyers specifications in fiberglass or stainless steel.

MANUFACTURER:

Wajax Manufacturing Ltd.,
110 Norman St.,
Suite 200,
Lachine, Que.
H8S 1A6
TEL: (514) 637-5572
FAX: (514) 637-3985
TELEX: 05-823654

WAJAX FIRE PUMPS



Wajax, high pressure portable fire pump plus in line accessories; fire hose and complete forest fire control system including foam and eductors

Wajax manufactures centrifugal fire pumps Mark series, models 26, 3, B1-11, BB-4, 40, 40D, 75.

Wajax also manufactures Wajax hand pumps, pump unit accessories (valves, couplings, threaded accessories, hose line accessories, fire control hand tools, high pressure fire hoses and hose repair equipment, fire hose testing equipment and self-contained trailer mounted fire control units.

Operational Specifications

The pump engine and water valve controls have been kept simple, and to a minimum, in order to make the unit operable by unskilled operators. All major components of the centrifugal pumps have been manufactured from high tensile strength, corrosion resistant alloys. The pump shaft is made from stainless steel.

Wajax offers a 24 hour service to assist its customers in time of emergency.

Noise reduction kits are available for areas requiring sound level reduction.

Full control panel for models BB-4 and B1-11 is optional, and includes panel light and switch, choke lever, starter button, kill switch, primer control, pressure gauge, hour meter and power cable (battery) connection.

Particular Specifications

Model Pump	Starting	Weight kg (lb.)	Dimensions cm (in.) Length	Width	Height
Mark 26	Manual	17.2 (38)	48 (19)	28 (11)	35.5 (14)
Mark 3	Manual	25.0 (55)	56 (22)	30.5 (12)	40.5 (16)
Mark B1-11	Electric	55.0 (121)	71 (28)	55 (22.)	51 (20)
Mark BB-4	Electric	75.0 (165)	86 (34)	48 (19)	48 (19)
Mark 40	Manual	84.0 (185)	86 (34)	57 (22.5)	53 (21)
Mark 40D	Electric	154.0 (340)	89 (35)	77 (30.5)	56 (22)
Mark 75	Electric	114.0 (250)	96.5 (38)	61 (24)	72 (28.5)

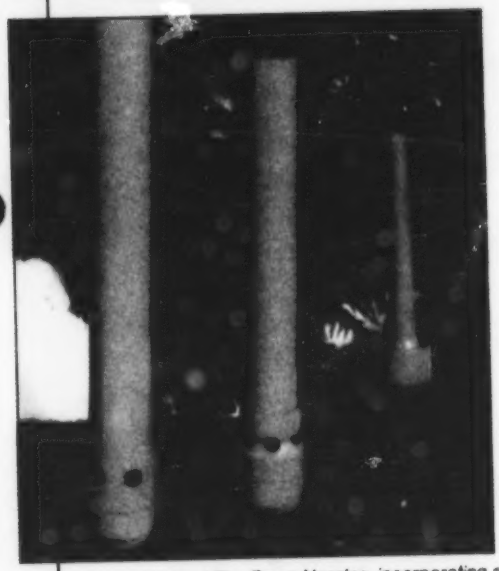
Mechanical Specifications

Model Pump	Power	Discharge (Free Flow) L/min (Imp. gal/min)
Mark 26	5.0 HP	318 (70)
Mark 3	9.0 HP	341 (75)
Mark BB-4	16.0 HP @ 3600 RPM	355 (78)
Mark B1-11	11.0 HP @ 3600 RPM	227 (50)
Mark 40	14.2 HP @ 3000 RPM 16.2 HP @ 4000 RPM	820 (180)
Mark 40D	Not available	700 (154)
Mark 75	38.0 HP @ 5300 RPM	1590 (350)

MANUFACTURER:

Wajax Manufacturing Ltd.,
110 Norman St.,
Suite 200,
Lachine, Que.
H8S 1A6
TEL: (514) 637-5572
FAX: (514) 637-3985
TELEX: 05-823654

BLIZZARD WIZARD FOAM NOZZLES



Blizzard Wizard Fire Foam Nozzles, incorporating a foam making device, also enhances the reach of the liquid stream.

Co-Son Industries manufactures the model B foam mixer, a companion product to the foam nozzles and used with Wajax Mk.3 pump or adaptable to most other makes of pump. The Blizzard Wizard Foam Nozzles are available in Models LF-5, MF-16, HF-32, HF-32M; other coupling sizes and types are also available from Co-Son on request.

Operational Specifications

Blizzard Wizard nozzles are of the air aspirating type and generate a fire-fighting foam of small homogeneous bubbles, which are slow draining, preventing the fuel from igniting due to radiant heat. These nozzles make high energy foam, without sacrificing the reach of the stream.

The foam can be used in direct attack on a forest fire or can be applied as a fire barrier on trees, structures or grasses.

The Model B Foam Mixer , a foam liquid eductor, uses two sections of garden hose to connect it to the fire pump, which together with a high quality stainless steel seated metering valve, permits mixing of the concentrate from 0 to 0.8% depending on water flow. This is a companion product to the foam nozzles.

Silv-Ex is a concentrate that combines foaming and wetting agents specifically formulated to extinguish forest fires. The Silv-Ex extinguishant is shipped as a concentrate, which can be used with a Co-Son injection system, as an in-line inductor.

Particular Specifications

Fire Foam Nozzles

Models	LF-5	MF-16	HF-32	HF-32M
Operating pressure, p.s.i. (bar)				
Min. Recommended	5.8(85)	5(70)	5(70)	5(70)
Max. Recommended	12(175)	14(200)	14(200)	14(200)
Foam/Water Flow @ 85 p.s.i.	23(5)	73(16)	146(32)	146(32)
L/min (l.g.p.m.)				
Quantity of Foam prod. @85 p.s.i.	182(40)	727(160)	1455(320)	1745(384)
l/min(l.g.p.m.)				
Reach of Stream @ 85 p.s.i. m(ft)	5(16)	25(80)	30(100)	15(50)
Coupling Size, cm (in)	1.9(3/4) N.P.T.	3.8(1 1/2) Fire Hose	3.8(1 1/2) Fire Hose	3.8(1 1/2) Fire Hose

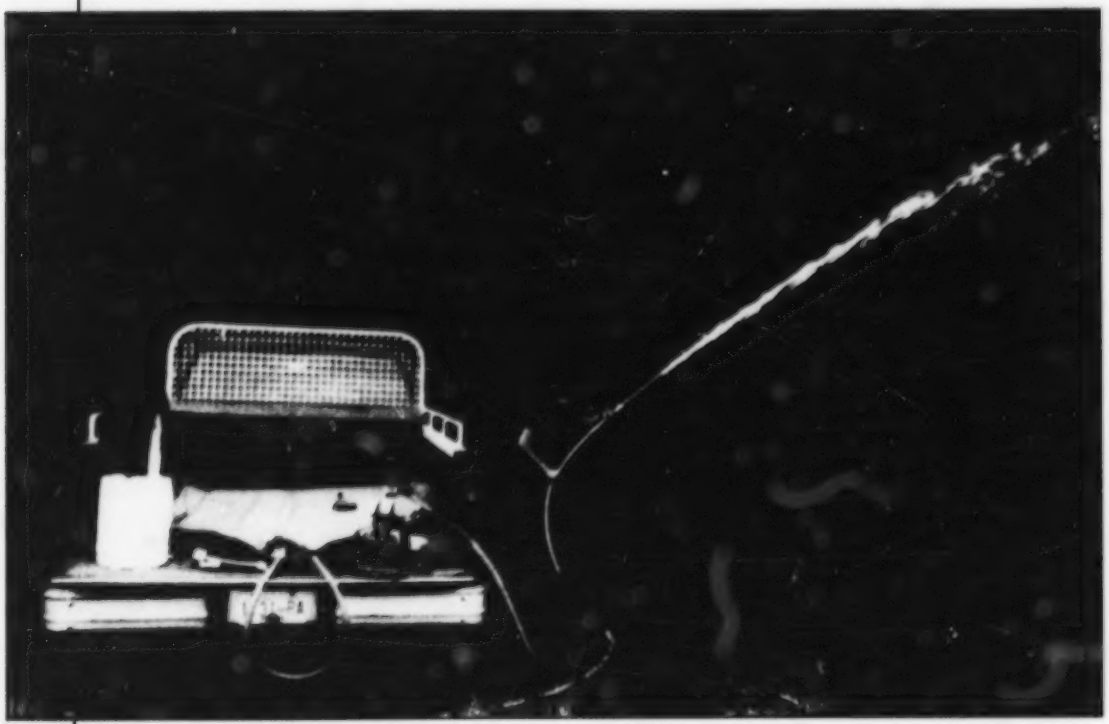
Option: Other coupling sizes and types are available

MANUFACTURER:

Co-Son Industries

1493 Sieveright Road
Gloucester, Ont.
K1T 1M5
TEL: (613) 733-5348
FAX: (613) 526-5905

FIREFLEX PICK-UP TRUCK TANK



Fireflex Pick-up truck tank for fire fighting or potable water transportation

Fireflex are manufacturers of portable fuel and water tanks, made of abrasion, tear and puncture resistant fabrics. Available in Flex-pac Backtanks, Fireflex Pick-up Truck Tanks, Fireflex Water Reservoirs, Fireflex Draughting Tank, Stilwell Firefiyer Model 60, and 110 liquid containers, and helicopter Rapattack 300.

Operational Specifications

The PT 90 is designed for small pick-up or 3/4 ton trucks, and the PT 150 for standard 3/4 ton or larger. Used in firefighting and potable water transport. Highly compact, and folds in seconds, using minimal space.

Particular Specifications

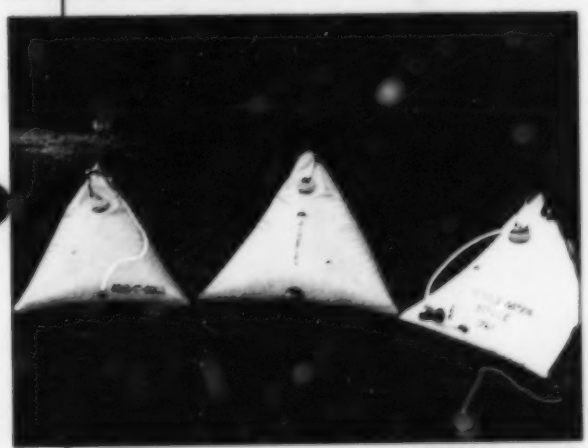
Fireflex Pick-Up Truck Tanks		
Models	PT90	PT150
Capacity litres (U.S. Gal.)	432(108)	720(180)
Dimensions (filed) (in.)	80x60x10	90x62x12
Filler collar	4 in. diameter filler cap c/w floatation	
Drainage	1 1/2 in. PVC ball valve	
Fabric	Heavy duty rip-stop industrial fabric	
Tie down	Four x # 2 grommets	Six x # 2 grommets

Baffled design for transport full, or part loads
Tank dimensions are based on North American standard bed pick-up trucks. These specifications can be altered according to truck bed size.

MANUFACTURER:

Fireflex Manufacturing Ltd.,
#204-20628 Mufford Cres., RR #4
Langley, B.C.
V3A 4A7
TEL: (604) 533-4268
FAX: (604) 530-6969

FIREFLEX PORTABLE RESERVOIRS



Fireflex on-site water reservoir (top), self-inflating and self-supporting; and Fireflex portable stilwells (bottom), multifunctional helicopter tanks.

Fireflex are manufacturers of portable fuel and water tanks, made of abrasion, tear and puncture resistant fabrics. Available in Flex-pac Backtanks, Fireflex Pick-up Truck Tanks, Fireflex Water Reservoirs, Fireflex Draughting Tank, Stilwell Fireflyer Model 60, and 110 liquid containers, and helicopter Rapattack 300.

Mechanical Specifications

Fully self-supporting, self inflating water reservoirs
Tank discharge through 7.6 cm (3 in.) or 10.2 cm (4 in.)
Material: PVC coated, woven polyester fabric
Rip stop construction
All welded construction
Flexible, and folds into packages
Dynamic cold crack of -67 deg. F.

Operational Specifications

The water reservoirs are for setting on remote level sites, and are often filled with fire-retardant chemicals in water. No steel braces are required as the tank is totally self-supporting.
Tank can be deployed, and filled by one person. It is deep enough to completely fill most standard size helicopter buckets, minimizing use of helicopter time. Multi-point D-ring tie down system, secures tank from rotor wash.
The Stilwell Flyers are adaptable to helicopter long-line delivery for fire delivery systems, potable water delivery, as well as fuel storage, foams, retardants. The design eliminates twisting and residual bounce in flight.

Particular Specifications

Fireflex Water Reservoirs Fireflex Models	500	1000	1500	2500	4000	5000
Collapsed Dimension in.	15x24x33	21x21x3	29x30x32	21x29x40	23x34x36	26x32x36
Weight kg (lb.)	14.5 (32)	21.8 (48)	29.5 (65)	38.1 (84)	49.9(110)	59 (130)
Filled O.D. m (in.)	1.9 (75)	3.0 (120)	3.4 (133)	4.2 (164)	4.8 (188)	5.3(208)
Collar I.D. m (in.)	1.5 (60)	1.5 (60)	1.5 (60)	2.7 (108)	3.4 (134)	3.6 (142)
Height m (in.)	1.0 (40)	1.0 (40)	1.2 (48)	1.2 (49)	1.1 (44)	1.5 (60)
U.S. gallons	500	600	1500	2500	4000	5000
Outlets	2-3"FNTP	2-3"FNTP	2-3"FNTP	2-3"FNTP	4- 3"FNTP	4-3"FNTP

Fireflex Stilwell Fireflyers Model	Stilwell 60 Fireflyer	Stilwell 110 Fireflyer
Capacity litres (U.S. gal.)	273 (72)	134 (500)
Dimensions Filled (in.)	45 width x 39 height	53 width x 43 height
Collapsed (in.)	19x24x5	24x24x5
Weight Filled kg (lb.)	227 (610)	505 (1112)
Empty kg (lb.)	4.5 (10)	5.5 (12)
Discharge	5/8 inch male garden hose thread	
Filler	4 inch diameter	

MANUFACTURER:

Fireflex Manufacturing Ltd.,
#204-20628 Mufford Cres., RR #4
Langley, B.C.
V3A 4A7
TEL: (604) 533-4268
FAX: (604) 530-6969

FIREFLEX HELICOPTERABLE 300 TANK

Fireflex Helicopterable 300 Tank, flown by a Bell model 212

Fireflex are manufacturers of portable fuel and water tanks, made of abrasion, tear and puncture resistant fabrics. Available in Flex-pac Backtanks, Fireflex Pick-up Truck Tanks, Fireflex Water Reservoirs, Fireflex Draughting Tank, Stilwell Fireflyer Model 60, and 110 liquid containers, and helicopter Rapattack 300.

Operational Specifications

The tank capacity is 1363 litres (300 I.gal, 360 U.S. Gal.). Flown by the Bell 212, or equivalent helicopter, to rappel or ground crews.
Designed for steep slopes without water resources. Secured by a sling around a tree or stump, and attached to two large D rings on the uphill side. Also used as an all-terrain relay tank.

Particular Specifications

Collapsed Dimensions,cm(in)	76.2(30) x 58.4(23) x 28(11)
Filled,cm(in)	183(72) diam. x 50.8(20) ht.
Empty weight, kg (lb.)	15.9(35)
Discharge	3.8cm (1 1/2in) x 0.61m(2ft)
suction discharge hose	
Filler,cm(in)	10.2(4)

MANUFACTURER:

Fireflex Manufacturing Ltd.,
#204-20628 Mufford Cres., RR #4
Langley, B.C.
V3A 4A7
TEL: (604) 533-4268
FAX: (604) 530-6969

FIREFLEX FLEX-PAK BACKTANK

Fireflex Flex-Pak Backtank for fire fighting

Fireflex are manufacturers of portable fuel and water tanks, made of abrasion, tear and puncture resistant fabrics. Available in Flex-pac Backtanks, Fireflex Pick-up Truck Tanks, Fireflex Water Reservoirs, Fireflex Draughting Tank, Stilwell Firefiyer Model 60, and 110 liquid containers, and helicopter Rapattack 300.

Particular Specifications

Tough nylon exterior, with three-way adjustable harness
Capacity, 18.9 litre (5 US Gal.) with 1.9 cm (3/4 in.) discharge
Filler inlet, 10.2 cm (4 in.) complete with built-in screen
Empty weight of tank, complete with pump is 1.6 kg (3.5 lb.)
Tubular design for maximum ventilation.
All welded construction
Flapper-valve designed pump eliminates clogging
Compactable

Operational Specifications

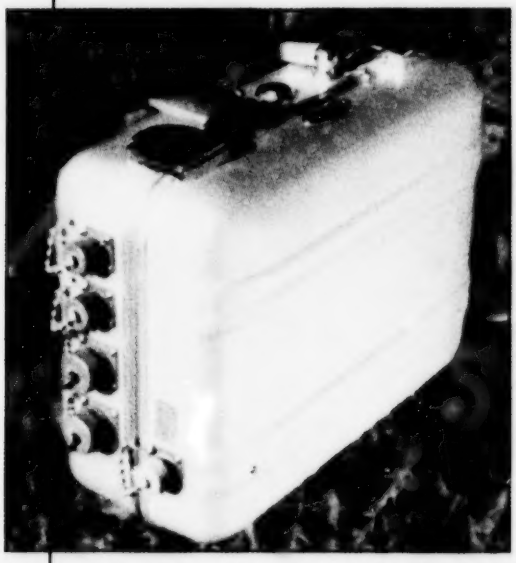
The tank is tubular in design for maximum ventilation. Findings have shown that the prime cause of fatigue among forest fire fighters, to be lack of body ventilation.

MANUFACTURER:

Fireflex Manufacturing Ltd.,
#204-20628 Mufford Cres
RR #4
Langley, B.C.
V3A 4A7
TEL: (604) 533-4268
FAX: (604) 530-6969

FORESTRY SUPPORT: FIRE MONITORING

FTS 6100 FIRE WEATHER STATION



FTS WR 62 fire weather recorder is a battery powered electronic recorder designed to automatically collect weather data for use in the calculation of the Fire Danger Rating System.

The FTS 6100 Fire Weather Station meets Canadian forest fire danger rating system standards. The station consists of a WR62 fire weather recorder, TH61 temperature and humidity sensor, RG61 rain gauge, WS61 wind speed sensor, WD61 wind direction sensor, MP61 mast package (10 m), SS61 wind sensor support, SH instrument shelter, ST61 shelter stand and SP61 solar panel package.

PRICE: N/A FOB Victoria, on request.

Particular Specifications

WR 62 Weather Recorder
The recorder is housed in a rugged aluminum case, with all critical electronic components sealed against moisture. The recorder and all the required sensors and accessories, are available as a complete turnkey package. The recorder is designed to be used without detailed instructions by field operators. All weather records are displayed in metric values for direct use in fire danger calculation. The recorder comes complete with an external connector to interface with a printer, telephone or telemetry system.

Power	8 D. Cells
Battery Life	5 weeks
Temperature Range	0-50 deg. Celcius
Case Dimensions	
Length	32 cm
Depth	13 cm
Width	25 cm
Weight	3.5 kg

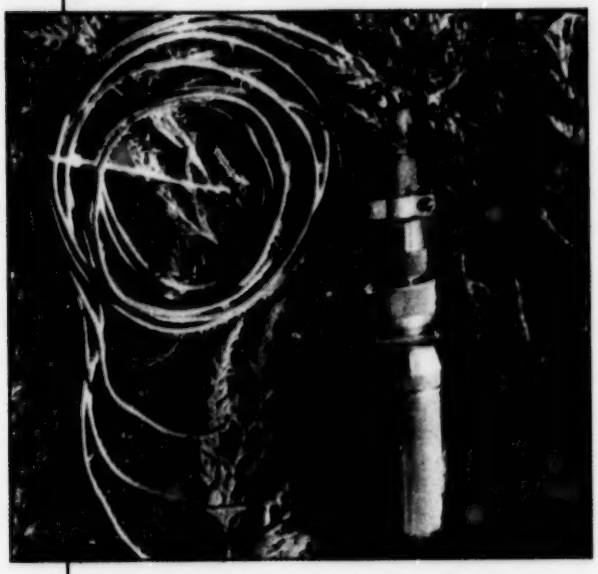
FTS 6100 Fire Weather Station

Temperature	± .5 deg. Celsius from 0-40 deg. Celsius
Humidity	2% from 10-90%
Wind Speed	± nearest 0.1 kmh over 10 minutes
Wind Direction	45 deg. increments of greatest duration over 10 minutes
Rainfall	resolution 0.1 mm
Measurement Capacity	one month of daily readings always in storage

MANUFACTURER:

Forest Technology Systems Ltd.,
841 Goldstream Ave., Victoria, B.C.
V9B 2X8
TEL: (604) 478-5561
FAX: (604) 478-8579

FTS THERMOLOGGER



The FTS thermologger consists of a small cylindrical body 15x16 cm (6x2.5 in.), and one set of three thermocouple probes. One IBM-PC compatible computer, with a serial port, is needed to collect the data from any number of FTS Thermologger units.

FTS Thermologger is a high temperature data acquisition system. It is a small, rugged, data logger, designed to collect data on the behavior and impact of forest fires.

Particular Specifications

Size cm (in.)	15 x 6 (6 x 2.5), cylindrical
Weight kg (lb.)	1.1 (2.4)
Temperature	For Thermologger body: 0-85 deg. C. (32-185 deg. F.)
Thermocouples	Type K, Inconel overbraided, Ceramic fiber insulated, 0-1200 deg. C. (32-2192 deg. F)
Accuracy	5 deg. C. from 15- 1200 deg.
Data Storage	Celsius
Memory	8 K RAM, expandable to 32 K RAM

Operational Specifications

In typical use, the FTS Thermologger units are buried (within 1 month prior to a forest fire burn) in the expected path of the flame front. Two probes are buried at user selected depths, while the other probe remains exposed to air. Each unit starts to log temperature data as soon as the probe exposed to air exceeds 70 deg. Celsius (158 deg. F.). The air temperature probe logs data every 10 seconds, while the buried probes log their temperatures every minute. Each FTS Thermologger unit can record up to 16.5 hours of "in-five" conditions, including re-burns. Within 10 days after the fire, the FTS Thermologger units are exhumed and their time/temperature data uploaded into the portable computer.

MANUFACTURER:

Forest Technology Systems Ltd.,
841 Goldstream Ave., Victoria, B.C.
V9B 2X8
TEL. (604) 478-5561
FAX. (604) 478-8579

FORESTRY SUPPORT: PORTABLE SAWMILLS

THE BOARD BANDIT PORTABLE SAWMILL

The Board Bandit portable band sawmill. Carriage moves down track. Saw blade cuts horizontally through the log in any dimension.

The Board Bandit portable sawmill is available in four models: model 20-16, 26-20, 28-20 and 30-20.

PRICE: From approx. $ 7000.00 to $ 11,000.00 F.O.B., Marmora, Ont.(1988). Model 20-16, $7,000., Model 26-20, $7,500., Model 28-20, $10,000.Model 30-20, $10,500.00

Mechanical Specifications

Model	20-16	26-20	28-20
Engine	11 HP Honda	11 HP Honda	Briggs & Stratton 18 HP
Options	8.2 kW	8.2 kW	13.4 kW

Shake jig, bevel siding jig, track extension, lighting package, electric hoist, steel ramps, steel skidway.

Operational Specifications

These sawmills are reported to be up to 90% accurate. They will cut paper thin material or any dimensioned lumber. The sawmills will also adapt to cut shingles, shakes and bevel siding.

The board bandit provides at least 30% more lumber from a log, compared to a conventional circular sawmill. Reported operating costs of $20-25 per M bd. ft. (2.36/m^3) (blades and gas). Blades last up to 3-M bd. ft. (7.1/m^3) and cost $20-26 each.

Operated by one man, it is capable of producing 2.36 m^3 (1M bd. ft.) to 9.44 m^3 (4M bd. ft.) per day.

Physical Specifications

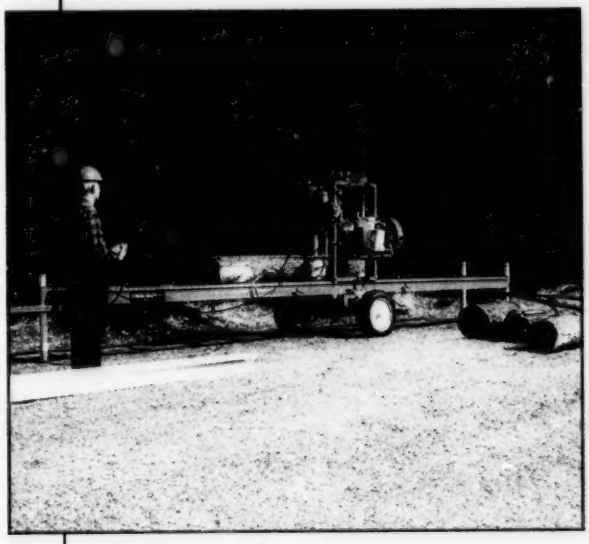
Model	20-16		26-20		28-20	
Height mm (ft.)	1981	(6.5)	2073	(6.8)	2032	(6.7)
Length mm (ft.)	7315	(24)	8534	(28)	8534	(28)
Width mm (ft.)	1880	(6.2)	1981	(6.5)	2134	(7)
Log Size mm (in.)	508X4884	(20x192.3)	660x6104	(22x240.3)	711x6104	(28x240.3)
Weight kg (lb.)	839	(1850)	907	(2000)	998	(22,000)

Model 30-20 will accept log size 813x6104 mm (32x240.3 in.).

MANUFACTURER:

Bonter Midway Mfg. Inc.,
Hwy. #7, 1/2 Mile West
Marmora
Marmora, Ont.
K0K 2M0
TEL: (613) 472-2122

SILVA-SAW PORTABLE BAND SAWMILL



The Silva-Saw portable band sawmill, easily operated by one man, enables log sawing on site, thus saving time and transportation costs.

Enercraft manufactures Models 24, 30 and 30H portable band sawmills, as well as optional equipment such as frame extensions to increase log capacity, winch and ramps for log handling, shingle, bevel siding attachments, and blade sharpeners.

PRICE: Silva-Saw 24 Manual, FOB Barrie(1988)$ 6,970.00
Silva-Saw 30 Manual, FOB Barrie(1988)$ 8,930.00
Silva-Saw 30 Hydraulic, FOB Barrie(1988) $13,860.00

Note: Portable sawmills are subject to additional Federal and Provincial sales tax.

Operational Specifications

ENERCRAFT manufactures three models of portable band sawmills that can be operated manually, or by hand held remote controls. These sawmills can be towed to a site behind a small truck, and set up in ten minutes ready to saw logs.

Physical Specifications

Model	24	30H
Overall Length m (ft.)	7.5 (24.5)	7.5 (24.5)
Frame (ft.)	2 of 2'x6' rectangular steel tubing	2 of 3'x6' rectangular steel tubing
Blades cm (in.)	both models 3.2 (1.25) x 0.107 (0.042) Raker style-1.9 (3/4) Pitch Hook type blade	
Cutting capacity m (ft.)	0.61 (2.0) dia. x 5.0 (16.5)	0.67 (2.5) dia. x 5.0 (16.5)
Weight kg (lb.)	622 (1460)	975 (2150)

Optional Equipment

Blade sharpener, frame extensions to increase log length capacity from 4.9m (16') to 12.2m (40'), winch and ramps, shingle and bevel siding attachments.

Mechanical Specifications

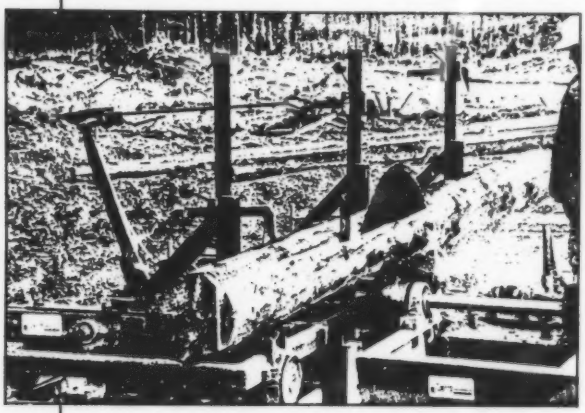
Model	24	30 H
Engine	Honda 8.2kW(11 HP) gasoline 4 cycle	Kohler 15kW(20 HP) gasoline c/w electric start
Controls	Not available with Electro-Hydraulic controls	Available without Electro-Hydraulic controls

MANUFACTURER:

ENERCRAFT MFG.,

Division of Elabern Ltd.,
474 Welham Road, Barrie,
Ontario, L4M 4S7
TEL: (705) 734-1855
FAX: (705) 734-1857

ALMAC PORT-A-MILL PORTABLE SAWMILL



The standard model 28-48-S Port-A-Mill available with optional tow bar and wheels for transport between sites by 3/4 ton truck or ag- tractor. If tractor is used, it can also power the unit through the p.t.o.

The standard Model 28-48-S Almac portable sawmill, and the high performance Model 28-48-HP. Designed as a portable or a stationary sawmill unit. Almac purchased the former Coutts Machinery Company, and now manufactures the sawmilling line: sawmills and carriages, edgers, scrag mills, cut-off saws, resaws, trimsaws, log turners, transfers and conveyors, log sorters, sawtooth grinders, planers, feedtables, saw collars, burner bearings and cutter heads.

Operational Specifications

The standard model 28-48-S comes with mechanical setworks, mechanical dogs, hydraulic feed system, capacity up to 23.6 m^3 (10 MBF) per 8 hour shift(depending on power, log diameter, and accessory equipment).

The high performance model 28-48-HP comes with hydraulic setworks, hydraulic dogs, upgraded hydraulic feed, capacity up to 59/m^3 (25 MBF) per 8 hour shift.

In addition to the portable option, as stationary units, the sawmill can be set on a skid base, a low bed or on a stationary deck and the logs brought to the mill. A tractor or independent power unit, can provide the power.

The mill is available as a tie-mill or long log operation. The tie-mill requires the short carriage and the short track extensions 2.4 m (8 ft). The long log sawmill requires the carriage trailer attached to the tie-mill carriage, and the longer end track extensions 3.7 to 4.9 m (12 to 16 ft).

Particular Specifications

Model	S	HP
Saw Diameter, cm (in.)	122 (48)	122 (48)
Track length, m (ft)	9.8 to 14.6 (32 to 48)	9.8 to 14.6 (32 to 48)
Width, m (ft)	1.2 (4)	1.2 (4)
Weight, kg (lb)	1814 (4000)	2268 (5000)
Application log size, cm (in.)	30 to 71 (12 to 28)	30 to 71 (12 to 28)

Mechanical Specifications

Power requirement, kW (hp)	67 to 149 (90 to 200)	
Carriage and Track		
Setworks with pedestal mounted clock type rule	mechanical Tubular steel	hydraulic
Feedworks	hydraulic	hydraulic

MANUFACTURER:

Almac Machine Works Ltd.

9539 - 56 Ave.
Edmonton, Alta.,
T6E 0B2
TEL: (403) 434-3402
FAX: (403) 437-3507

BRUNETTE PORTO-MILL PORTABLE SAWMILL

Brunette Porto-Mill portable sawmill with time-proven Webb & Gifford friction type feed works for trouble-free operation in any climate.

Brunette Porto-Mill portable circular sawmill. The Company also manufactures other sawmill equipment, i.e. Brunette Ring Debarkers.

Particular Specifications

Frame: One piece heavy duty all steel formed frame, incorporating one flat rail (front), one vee rail (rear), mounted on tandem type axles complete with towing bar and lumber clearing rolls.

Carriage and Blocks: Three block, three truck axles 45 mm (1.8″) dia. mounted in spherical roller, self-aligning bearings. 600 mm (23.6″) opening with block spacing for logs 2.4 m (7.9ft.) to 5 m (16.4ft.) long. Fitted with hand operated dogs, hand operated dogs, hand operated setworks and powered block receder. Infinitely variable hydraulic feed type drive. Hydraulic motor coupled directly to cable drum (integral with mainframe) providing 9 to 20 m/min (29.5 to 98.4 ft/min) feed speed. Hydraulic pump, vee-belt driven from jackshaft. Friction feed optional, at additional cost.

Saws: Top and bottom 1370 mm (54″) standard, maximum 1525 mm (60″). Saws with replaceable shanks and bits for rugged service and easy maintenance, 203 mm (8″) collars standard.

Saw Guides: Replaceable plug-type guides - adjustable by a hand wheel.

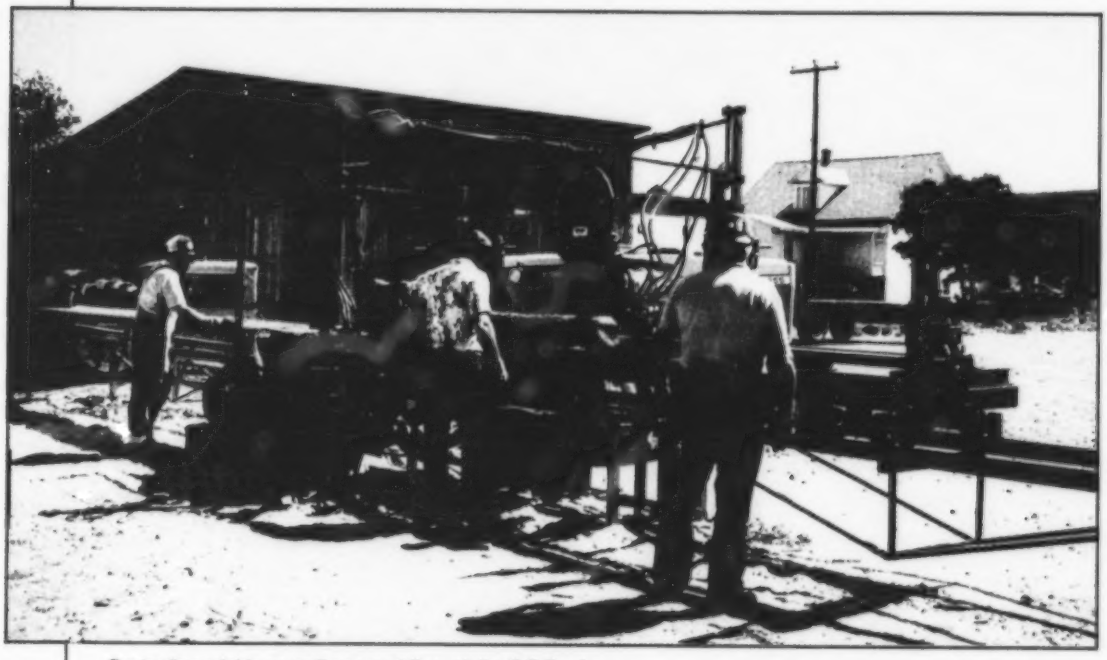
General: All necessary jacks and tools such as saw wrenches are provided along with maintenance, parts and operator's manuals.

MANUFACTURER:

Brunette Machine Works Ltd.,

330 Edworthy Way, New Westminster, B.C. V3L 5G5
V3L 5G5
TEL:(604) 522-3977
FAX: (604) 522-6806
TELEX: 04-351189

DESJARDIN P.T.O. PORTABLE SAWMILL



Desjardin portable sawmill powered through the P.T.O. of a M.F. 255 tractor or equivalent.

Desjardin portable sawmill model Kamouraska, portable or stationary mill.

PRICE: Approx. $ 17, 500.00 F.O.B. St-Andre, Que. (1988)

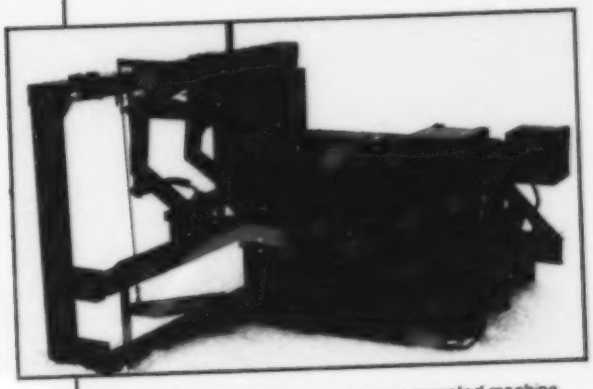
Particular and Mechanical Specifications

Mill Capacity	Cuts logs 1.2 m(4ft) to 5.5 m(18ft) with max. diam. of 20 in.
Carriage	4.3(14) long with two 3 m(10) extensions for the rails.
Saw Arbor	6.2 cm(2 7/16 in.) diameter, driven by tractor P.T.O. @ 540 RPM On all hazardous places
Security Guards	
Saw	
Tractor P.T.O.	96.5 cm(38 in.) diameter requiring 41 kW(55 HP) or using 112 cm(44 in.)diameter, requiring 56 kW(75 HP)
Electric Motor	96.5 cm(38 in.) diameter, requiring 22.3 kW(30 HP) or 112 cm(44 in.)diameter, requiring 37.3 kW-(50 HP)
Saw Dust Blower	Included with the mill
Total Weight	1588 kg (3500 lb.) (varies with optional equipment)
Production Capacity	Approx. 1219-2438 m(4000-8000 ft) of wood per eight hour shift
Options	Hydraulic log turner, hydraulic log ejector, hydraulic post dog (2) controls

MANUFACTURER:

Les Industries Desjardins Ltée,
79 rue Principale,
St-Andre, Quebec
G0L 2H0
TEL: (418) 493-2114
FAX: (418) 493-2432

DESJARDINS SHINGLE MILL



Desjardins shingle mill, a one-man operated machine

Desjardins Shingle Mill is available with power take-off attachment, making it possible to use the 540 RPM P.T.O. from any medium size tractor. Also available in regular model RE86X, or hydraulic model HY81 versions.

PRICE: Approx. $ 8500.00 F.O.B. St-Andre, Que. (1988)

Operational Specifications

The mill makes finished shingles from green round blocks cut 406 or 457 mm (16 or 18 in.) long, at the rate of 20 shingles per minute or 6-7 bundles per hour. One cord of scrap tip logs can be processed into approximately 20-25 bundles of shingles per eight hour shift.

Particular and Mechanical Specifications

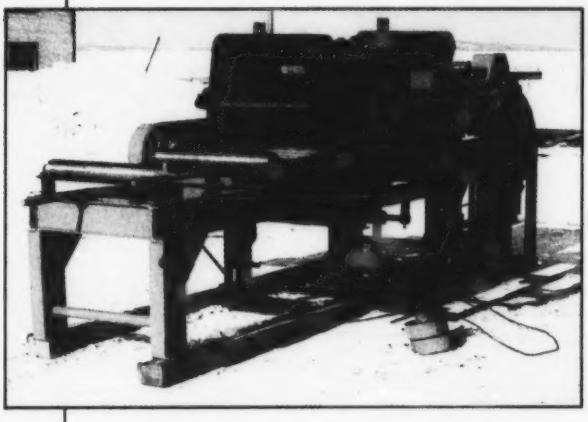
Physical Measurements of Mill	2.6x2.3x1.7 m high (8.5x7.5x5.5 ft. high)
Weight of mill	1361 kg (3000 lb.)
Diameter of edger saw	914 mm (36 in.)
Diameter of shingle saw	965 mm (38 in.)
Power required	18.6 kW (25 HP)
Speed of main and edger shaft	1500 RPM
Options	For making 1/2 and 3/4 in. thick butts on shingles; also for making mine wedges up to 1 1/4 in. thick. Special heavier spurs 1 1/2, 1 9/16 and 1 5/8 in. are available Special rachet wheel with five teeth for 5/8 in. thick or six teeth for 1/2 in. thick shingles

MANUFACTURER:

Les Industries Desjardins Ltée,

79 rue Principale,
St-Andre, Quebec
G0L 2H0
TEL:(418) 493-2114
FAX:(418) 493-2432

DESJARDINS EDGERS



Desjardins stationary edger in the 37.3 kW (50 HP) class (left). Model Kamouraska (right) edger for use with a portable sawmill.

The Dejardins Kamouraska model is available as a portable, to work in conjunction with a portable sawmill. A larger mobile or stationary model is also available where higher production is required.

Particular and Mechanical Specifications

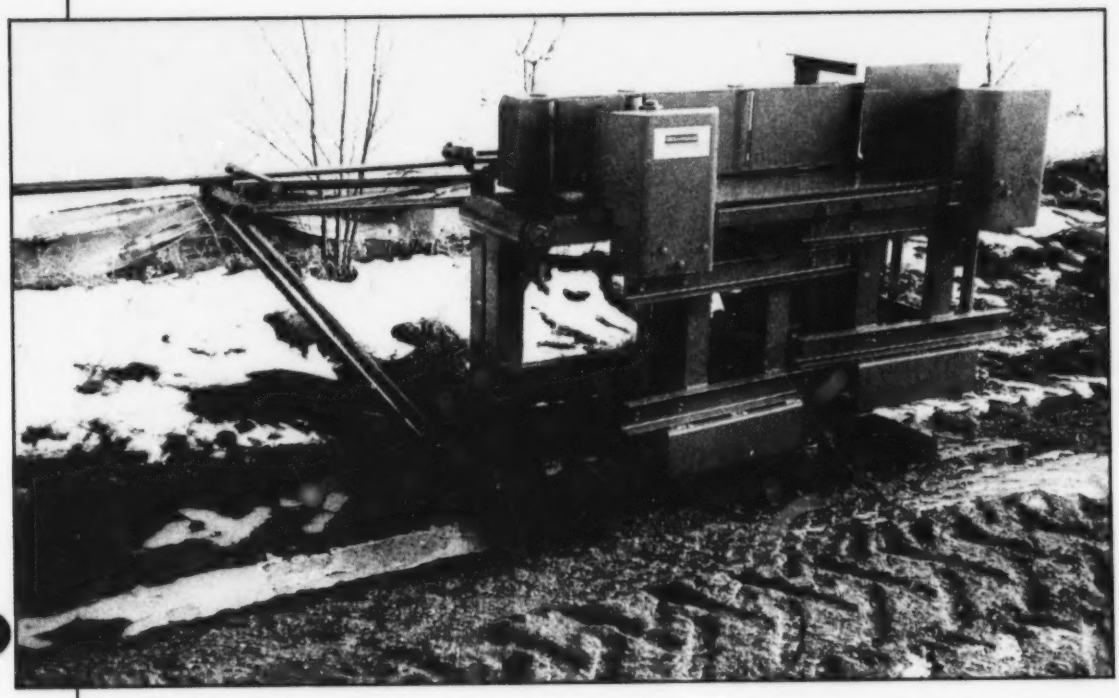
Edger for Portable Sawmill - Model Kamouraska	
Power	22.4 kW (30 HP) if P.T.O. of tractor 11.2 kW (15 HP) by electric motor and V-belt pulley
Saws	Two inserted teeth saws of 356 mm (14 in.) diameter, one moveable, one fixed Optional saws 406 or 457 mm (16 or 18 in. diameter
Operating Capacity	102 mm (4 in.) thick by 305 mm (12 in wide)
Production Capacity	(356 mm (14 in.) diameter saw) 127 to 152 mm (5 to 6 in.) thick optional 406 or 457 mm (16 or 18 in.) diameter saw minimum of 1219 m (4000 ft.) output in 8 hours
Options	Moveable saw can be operated by hydraulic system Transport wheels are optional
Edger (portable or stationary)	
Dimensions	3048x1524x1727 to 1981 mm (120x60x68 to 78 in.)
Weight	1588 kg (3500 lb.)
Power	37.3 kW (50 HP)
Saws	One fixed and one moveable
Operating Capacity	152 mm (6 in.) thick by 406 mm (16 in.) wide
Controls	Manual, or optional hydraulic type

MANUFACTURER:

Les Industries Desjardins Ltée,

79 rue Principale,
St-Andre, Quebec
G0L 2H0
TEL:(418) 493-2114
FAX:(418) 493-2432

DESJARDINS INDIVIDUAL RESAW



Desjardins individual resaw

Desjardins Resaw is available in two models: mechanical or hydraulic types

PRICE: Approx. $ 6,795.00 F.O.B. St-Andre, Que. (1988)

Particular Specifications

Height,cm(in)	132(52)
Length,cm(in)	183(72)
Width,cm(in)	81.3(32)
Weight, kg(lb)	794(1750)

Mechanical Specifications

Power req.,kW(hp)	22.4(30)
Variable speed (on the hydraulic model)	71(28) to 81.3(32)
Insert tooth saw,cm(in)	
Capacity,cm(in)	1.9(<) to 15.2(6)

MANUFACTURER:

Les Industries Desjardins Ltée.,

79 rue Principale,
St-Andre, Quebec
G0L 2H0
TEL: (418) 493-2114
FAX: (418) 493-2432

LOGGING AND TRANSPORT: COMMERCIAL OPERATIONS

TO: Industry, Trade and Technology Branch
Forestry Canada
351 St. Joseph Blvd., 20th Floor,
Hull, Que. K1A 1G5
Attn: Mr. D. V. Myles, R.P.F.

I have read the Compendium of Canadian Forestry, Logging and Transport Equipment and Tools and would like:

———— To be contacted to have data on my Company included in future editions of this publication (Canadian forestry equipment manufacturing firms)

———— To receive ____ additional copies of this publication.

———— To be placed on your distribution list to receive future copies of this Compendium.

Company **Name** _____

Company Contact _____

Address _____

City _____ **Prov.** _____ **Country** _____

Postal **Code** _____

Telephone _____ **FAX** _____